Gleanings in Bee Culture

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Installation and *Care* of Package Bees in Saskatchewan

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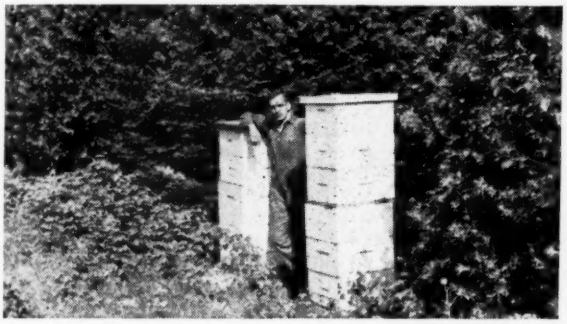

Mr. Mallory and a couple of nice colonies from package bees

Saskatchewan is one of the largest importers of package bees. Although the wintering of bees is increasing in popularity, many beekeepers of the province still prefer to kill their bees each fall and replace them with packages in the spring. These yearly package replacements make up 60 per cent of the bee population in the province. Last year over 47,000 packages were imported from the southern states.

The Saskatchewan Beekeepers' Co-operative Association, which is owned and operated by the beekeepers themselves, is the major importer of package bees. This Co-operative has endeavored to improve the quality of their bees by working in close cooperation with a number of southern package shippers. Some of these shippers have been supplied with breeding stock which has proven exceptionally prolific in Saskatchewan. The Co-operative also furnishes shippers with extra labor, if required, during their shipping season.

Package bees are ordered for delivery about the time the first honey and pollen plants come into bloom. Crocus provides the first pollen in many sections, about the second week of April. Willow follows a week to ten days later and some species are still opening early in June in some sections of the North. Willows are important in Saskatchewan as they provide the first source of nectar for the bees. The larger commercial producers in the North try to have delivery of their bees between the 10th and 25th of April. A few years ago very few packages were ordered for delivery before the first part of May but the change in honey flow now demands earlier bees. Packages that now arrive after the 10th of May are seldom ready for the main honey flow.

The package bees, as a rule, come into the province in excellent condition. The Saskatchewan Beekeepers' Co-operative Association had less than one half of one per cent damaged in 1944.

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Several attempts have been made by the larger producers to pick up their bees and bring them North by truck. This practice has proven successful when a large number of packages have been consigned to one spot. It has, however, been unsuccessful when scattered deliveries have to be made. Further, the roads here are often impassable in April.

Preparation of Equipment

Each package is provided with a bottom, top, one super of ten combs and an entrance reducer. This equipment is prepared and located in the yard ready for the arrival of the bees. All yards are protected from the wind, if possible, on three sides and open to the South. If a number of packages are to be installed at the same time the hives are placed six to eight feet apart to prevent drifting.

As many colonies are gassed each fall, old brood chambers are usually available for the new bees. These old, dark combs of honey and pollen provide an ideal medium on which the new package can expand rapidly.

If 20 to 25 pounds of honey are not available in the combs, a 50-50 solution of sugar syrup has to be substituted. The most satisfactory method of feeding sugar syrup is by filling empty combs and placing them directly in the brood nest. Each comb holds about four pounds of syrup. These combs are filled by a small can with a number of nail holes in the bottom. The fine streams from the holes will fill the cells of the comb. This places the food supply where it is readily available to the bees and saves the use of extra equipment for feeding purposes.

Beginners, who have no drawn-out combs, must start with ten frames containing full sheets of foundation. In this case, a feeder pail has to be supplied. A feeder board or a mat provided with a hole in the center is used over the frames to prevent the loss of valuable heat from the brood nest. An empty super is used on top of the feeder board to enclose the feeder pail.

The package bees are examined at the express office before accepting delivery. If the shipment is damaged the express company signs a verification of this fact and a claim is made to the shipper.

Bees are never hived as soon as they are received. Upon arrival, they are usually cold, hungry, and extremely nervous. They must be warmed up, fed, and given a chance to settle down before any attempt is made to hive them.

Feeding is done in a warm room. A temperature of 70° to 80° will allow the cluster in the cage to break up. Feeding is started through the screen immediately and continued until the bees are gorged. A garden spray or large fly spray works the most satisfactorily for feeding purposes but a paint brush will work successfully for a small number of colonies. A mixture of equal parts of sugar and water is used. The syrup is warm enough to help warm the bees.

Feeding may take from two to three hours or longer, depending on how empty the feeder cans in the packages are upon arrival. Care must be taken to prevent the bees from becoming too sticky. The bees are allowed to clean each other up before spraying them again. **Wet, sticky bees are easily chilled and cannot be hived in such a condition.**

Beekeepers often make the costly mistake of getting the bees nicely warmed up without feeding them sufficient to satisfy them. Hungry bees often ball the queen and kill her or injure her enough to cause supersedure later. Proper feeding before hiving cannot be over-emphasized and is probably the most important single step in package management.

After the bees will take no more feed, they are allowed to cluster before hiving. This may be delayed until evening to prevent drifting but if the bees are gorged and the hives placed six to eight feet apart, and packages hived in alternate parts of the yard, very little drifting will take place.

Steps in Hiving

1. The cover is removed from the prepared hive and four of the 10 combs are removed from one side of the brood chamber.

2. The board is pried off the top of the feeder can on the package. Then with a sharp jar, the bees are shaken to the bottom of the cage.

3. The feeder can is removed, as well as the cage containing the queen. This cage is usually suspended on a wire from the top of the package. The hole in the package is then closed to prevent the bees from escaping.

4. The queen is examined carefully in the cage to see that she is

active and in good condition. If she is satisfactory, she is slipped into a side coat pocket to prevent her from becoming chilled. Queens cannot stand a temperature below 60° when separated from the cluster. It is a wise precaution to see that loose bees do not go into the pocket clinging to the cage.

5. The cover is again removed from the opening in the top of the package and, by turning the cage upside down, most of the bees can be easily shaken into the empty space provided when the four combs were removed. A few sharp jars on the ends of the cage will remove the last few clinging bees.

6. The four combs are then gently replaced, after making certain the bees are well spread out on the bottom of the hive.

7. A slight spray of thin sugar syrup is then applied to the bees on the frames to prevent them from flying.

8. The queen cage is then removed from the pocket. If a container of warm sugar syrup is handy, the queen cage and all is immersed or sprayed. This gets her sticky enough to prevent her flying and does her no harm.

9. The screen from the face of the queen cage is then removed and the queen is allowed to crawl directly among the bees. She will be sticky enough to have lost her identity and by the time the bees have cleaned her, she is introduced and ready to begin laying.

10. The cover of the hive is then carefully replaced, making certain that the queen and a number of bees are not crushed when doing so.

11. The entrance in front of the hive is reduced to three-quarters of an inch in length.

Filling frames with sugar syrup

12. To be sure that the queen is safely introduced, the colony is not disturbed for at least seven or eight days.

13. If the queen is dead on arrival, the queenless bees are united to several other packages. This is carried out by simply shaking the queenless bees in front of a queen-right package and letting them run in at the entrance.

If only a single package is purchased and the queen is dead upon arrival, a new queen can often be secured within a day or two. In this case, the queenless bees are hived as

(Continued on page 173)

Mr. John Blickensderfer, of Guernsey, Sask., in one of his sweet clover yards.

Used Equipment Usually Reflects the Character of the Seller

Purchasing Used Equipment

By Grant D. Morse, Ph. D.

"Mr. So-and-So wants to sell you his bees," a friend said to me last October.

I went to see Mr. So-and-So. He wasn't too keen about selling. He had owned the bees for a long time. He regarded them jealously. Perhaps his being a bachelor heightened his affection for them. So I left him and his bees together.

The latter part of the month my friend said to me, "I think Mr. So-and-So may have changed his mind now about not selling his bees. They are short of honey for the winter."

I went to visit the bachelor beekeeper again. He tried to appear reluctant, but at heart was ready to sell. His colonies were all in single hive bodies, since he produced only comb honey. I lifted several of them. They were light. Guardedly, he told me he thought they had sufficient stores for wintering purposes, though his tone failed to carry conviction because, being an honest man, he didn't really want to deceive me.

I asked why he didn't buy sugar and feed them. The substance of his response was that he had never fed sugar before and wanted to avoid the messy trouble of doing so now. Besides, as he said, sugar was almost impossible to get because the stores simply didn't have any. So he sold me his bees.

I enjoyed my two visits to this bachelor beekeeper—not because I was able to buy his bees (I almost regretted taking them away from him) but because, like almost all other keepers of bees, he had interesting ideas about an apiarist's problems; also he used two or three methods that were new to me. Perhaps the fact about his practices that interested me most was the success he had had in developing a strain of gentle bees. I have never emphasized this in my own practice, so I was impressed with being able to spend the greater part of an October afternoon in his beeyard without even one bee threatening to sting me, this in spite of the fact there was some robbing at the time.

As we passed from one colony to another, he would say from time to time, "This one is a bit ugly." But in spite of my tapping on the hive fronts, and moving my hand back and forth in front of the entrances, and taking off covers without using smoke, the bees continued to refrain from molesting us. Meanwhile I watched the entrance guards successfully resisting the ingress of would-be robbers. He had developed this strain by consistently replacing the queen of every ugly colony year after year, introducing new ones from his favorite hives. I wondered at the time, and continue to question, to what extent the gentleness of his bees is a result of careful handling rather than breeding. He told me he made it a practice never to kill a bee if he could possibly help it. This coming summer I shall learn about this, as my manipulations are not that careful, partially because I do not have the time to make them so.

"I furnished my neighboring beekeepers with free queens from my yard," he told me, "in order to prevent the drones in their yards from spoiling my program of developing gentleness."

I shall be very much interested in checking to determine whether this gentle strain of bees can produce a surplus comparable with what my less gentle ones can accumulate. Rightly or wrongly, it is my general observation that the ugliest colonies have the most honey above the brood nest. I'm not saying it has to be that way, but I fear that too many queen breeders have singleness of purpose in mind: so frequently they are influenced by a desire to secure color, or size, or gentleness, or fecundity, or productiveness—or some other one insignificant characteristic.

This bachelor beekeeper explained to me the method he uses of consistently introducing a new queen to a queenright colony without loss. I do not find this too easy to do, and I know many others who have difficulty. His method is to cage the old queen and leave her thus in the colony for about a day. At the same time he cages the old queen, he places in the hive the cage containing the new queen. A day or two

later he removes the cage containing the old queen, and he states the new queen can then be safely released, or if the operator prefers, can be left for the bees to release shortly. I do not claim this method is new. It is merely new to me. But I believe it embodies the essentials of safe introduction. If you stop to think about it, there is no cause to wonder at the fact so many colonies refuse to accept a new queen after their own queen has been killed or removed. For, as soon as they become aware of the loss of their old queen, they instinctively hasten to start queen cells. They tend to do this immediately and at a time when the introduction of a new and strange queen seems to them an intrusion. Once having started queen cells it is hard to turn back, to change their minds and accept a new contender for the throne. The consequence is the new queen is too often killed when she emerges from her cage. The caging of the old queen at the time the cage containing the new queen is introduced deceives the bees. They tend to assume they are not going to lose their old queen so do not start cells. They have no immediate opportunity to kill the newly-introduced queen. By the time the old queen is removed (a day or two or three later) the new one has acquired status.

Another fact that impressed me in my visit to this beekeeper is the plight the comb honey producer so often finds himself in—provided he produces comb honey exclusively, and in an area where the yield is usually so light as it is here. Customarily the comb honey producer uses a single hive today for a brood nest, compelling the bees to place their surplus in the sections. Unless there is a later flow upon which the operator can depend, he must feed such colonies to prevent subsequent starvation. There are alternatives. One is to house the bees in two brood chambers, placing the comb honey super above these and waiting to take a yield until the bees have first stored their winter food. This is not at all impossible. It works when the flow is heavy. I have tried it. Another is to operate only part of a yard as comb honey producers, giving the comb honey colonies the surplus from the others. I think this is a better method. Still another alternative is to feed the light colonies when the later flows fail. The chief reason so many operators fail to produce comb honey is that they do not receive a price for the comb honey that is commensurate with its greater cost of production.

No matter what price extracted honey brings, comb honey should bring at least twice as much, preferably more, to make its production profitable. (This is assuming, of course, that the operator has a rather large number of colonies—say, 20 or more. For the operator of a small number, comb honey production may well be more attractive since it eliminates the need of using extra equipment.) But I think even the producer of large quantities of honey would do well to make some comb honey if he can manage it since there are so many consumers who prefer to eat it in that form.

Another source of pleasure in my visit to this bachelor beekeeper lay in the hunting stories he told me as I sat there with him, each astride a hive, and watched the bees enjoying the sun and warmth of a late October afternoon. It occurred to me again as it has before, and as I have previously written, that here was a man keeping bees, not primarily because of any zeal for revenue, but on acount of the natural love there is in him for things of the wild. He told of the fox hounds he had owned and followed, of deer hunting, of trout fishing. He showed me some of his guns, every one of them free inside and out of rust, and yet not too shiny but bearing the evidence of bangs and knocks received in long usage in the field and woods. Like the exterior of his hives, their appearance gave evidence of thoughtful selection, of careful treatment, yet of long, day-by-day usage.

I purchased his colonies without taking the precaution of lifting out and examining a single frame. (I did ask if they had been wired and if they were reasonably free from drone comb.)

When I got them home, and had to replace many of the empty combs with combs full of honey I found them to be as I had expected them to be—more free from drone comb than his statements might have led me to believe, and free from surplus propolis. The interiors of the hives were like the exteriors, and both mirrored the beekeeper.

Saugerties, New York

Is There a *Real Pollen Substitute?*

By Mykola H. Haydak
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Beekeepers of the past did not concern themselves with the question as to whether various kinds of flours which the bees brought into their hives in the spring could take the place of pollen in the nutrition of the colony. The fact that bees collected rye or oat flour was considered by them to be sufficient proof that these materials were utilized by the bees in their brood-rearing activities. Actually many beekeepers claimed that very strong colonies were built up when rye and oat flour were offered to the bees in the spring. These opinions, of course, were based on casual observations and not on critical experiments where control colonies were used to check the results from feeding various materials.

It has been a common practice among beekeepers of all countries to offer various kinds of flours to bees when the natural resources of pollen were absent. However, actual tests to determine how much the bees used these materials and what benefits they derived from them were first performed in the latter half of the last century. A. I. Root was the first to isolate colonies of bees in a greenhouse where pollen was not accessible to them and to offer the bees flour in place of the pollen. It is only in very recent years, however, that a series of controlled experiments was performed by Parker of Cornell. He tested various flours by feeding them to bees in the greenhouse in 1925. His conclusions were that wheat, rye, and some other flours could not take the place of pollen in the diet of bees. Whitcomb and Wilson confirmed Parker's results but they were able to show that when a colony is taken from out of doors and kept in the greenhouse on combs free of pollen the bees could rear brood and even produce a queen when fed only on a sugar solution.

In 1932 and the years following Haydak applied the method generally used in studies of animal nutrition to determine the role of pollen in the diet of bees. Colonies of young bees that had never eaten pollen were isolated in cages and were supplied with various food materials as a substitute for pollen. The development of the bees, their brood-rearing activity and their mortality were observed. The results of these feedings were compared with those obtained from similarly established colonies which were fed pollen. Some 25 different foods were tested by Haydak on isolated nuclei and the results he obtained showed that the brood rearing was most successful when dried brewers' yeast, dry skim milk, soybean flour, or cottonseed meal were substituted for pollen. Since dried brewers' yeast was considerably more expensive and much less available than the other three foods, a mixture consisting of four parts of soybean flour and one part dry skim milk by weight was recommended as a pollen substitute for feeding bees.

As World War II progressed a shortage of dry skim milk developed. It was then that dried brewers' yeast and dried egg yolk were recommended for use in place of dry skim milk. These latter two foods could also be recommended under war conditions because the high prices of honey made it possible for the beekeeper to use more expensive foods.

A Recent Experiment

In view of these developments it seemed wise to again check and compare the efficiency of various mixtures recommended as food for bees and an entirely new set of experiments was started at the University of Minnesota Agricultural Experiment Station in July, 1944. Nuclei, containing about two pounds of young bees which had never eaten pollen, were placed in wire screen cages and various foods were tested as to their value in brood rearing. Pollen, dry skim milk, and dried brewers' yeast used in animal feeding (animal yeast) were each mixed with expeller processed soybean flour at the rates of 1:4 by weight, while dried brewers' yeast for human consumption (medicinal yeast) was mixed with expeller processed soybean flour in the propor-

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tions of 1:9 by weight. The experiments were run in duplicate. Each nucleus was headed by a good laying queen. The experiment with each colony continued 30 days, starting from the time when the first sealed cell was noticed in the colony. The total number of sealed cells and the number of larvae in open cells were counted and recorded every ten days. The results of these observations (total brood rearing) is present in the following table:

dwindled considerably as might be expected of colonies kept in confinement. Nevertheless on November 1 all of them were still rearing brood normally. On November 22 the strongest one of them still had 39 sealed cells and 17 larvae in all stadia. The remaining colonies had stopped their brood-rearing activities, because only the queen and a few bees remained in each nucleus.

It is quite evident from the 1944 experiments that dried brewers'

TABLE 1. TOTAL BROOD REARING ACTIVITY OF EXPERIMENTAL COLONIES

Supplement to soybean flour	Total No. of sealed cells	Total No. of unsealed cells	Total brood count cells	Brood production index for sealed cells	Brood production index for total brood count
Dried skim milk	1278	1046	2324	1.0	1.2
Pollen	1238	702	1940	1.0	1.0
Medicinal yeast	2440	1144	3584	2.0	1.8
Animal yeast	2105	2231	3845	1.7	2.0

By assigning the numerical value of one point to the group with the lowest brood count and then by dividing the results of the brood counts from other groups by this lowest number a system of indices was established which gives a simple numerical relation of the food efficiency of various pollen substitutes.

From these results it is evident that dry skim milk is about equal to pollen as a supplement to soybean flour, while dried brewers' yeast is about twice as effective as either the dry skim milk or pollen. It was noticed, however, that although the pollen supplement resulted in production of a smaller number of sealed cells, the brood rearing activity of the bees was nearer normal than that in the colonies fed the dry skim milk mixture. At the end of the second and third ten-day periods there were about four times as many sealed cells in pollen fed colonies as in those fed the dried skim milk mixture. This means that four times as many larvae reached the sealing stage in the pollen supplement fed colonies than in the colonies fed dry skim milk-soybean flour mixture. The final results, however, were equal for both groups. Colonies fed on the dried brewers' yeast-soybean flour mixture reared brood normally, just as in the colonies outside.

It was then decided to test the efficiency of the dried brewers' yeast mixture still further. Several of the nuclei used in the previous experiment were continued in the greenhouse on pollen substitute (dried brewers' yeast-soybean flour mixture) cakes. These colonies

yeast-soybean flour mixture proved to be a very efficient pollen substitute. On the basis of these experiments the following directions and formulae are recommended:

Procedure for Preparing Pollen Substitute

Ingredients:

1. **Soybean flour** produced by the expeller method or soybean flour from which the fat has been extracted with a solvent and the flour heated afterwards. The fat content of the flour should be 5-7%.

2. **Dry Skim milk.** That produced by the spray process is preferred, but in an emergency any kind of dried milk can be used.

3. **Dried brewers' yeast.**

a. Dried brewers' yeast for human consumption (designated herein as "medicinal" yeast).

b. Dried bitter brewers' yeast for animal consumption (designated herein as "animal" yeast).

Thoroughly mix the ingredients in preparing any of the following formulas:

Formula 1

Soybean flour 4 parts by weight
Dry skim milk 1 part by weight

Formula 2

Soybean flour 9 parts by weight
Medicinal yeast 1 part by weight

Formula 3

Soybean flour 6 parts by weight
Animal yeast 1 part by weight

The most convenient way of feeding pollen substitute to colonies outside is to offer it dry. The substitute should be placed in shallow trays (these can be made by cutting down the sides of corrugated paper boxes) and offered to the bees in a sunny and protected place in the

apiary. Some of the mixture will be wasted by the bees around the collecting place, especially on windy days. This loss can be minimized by spreading canvas under the trays.

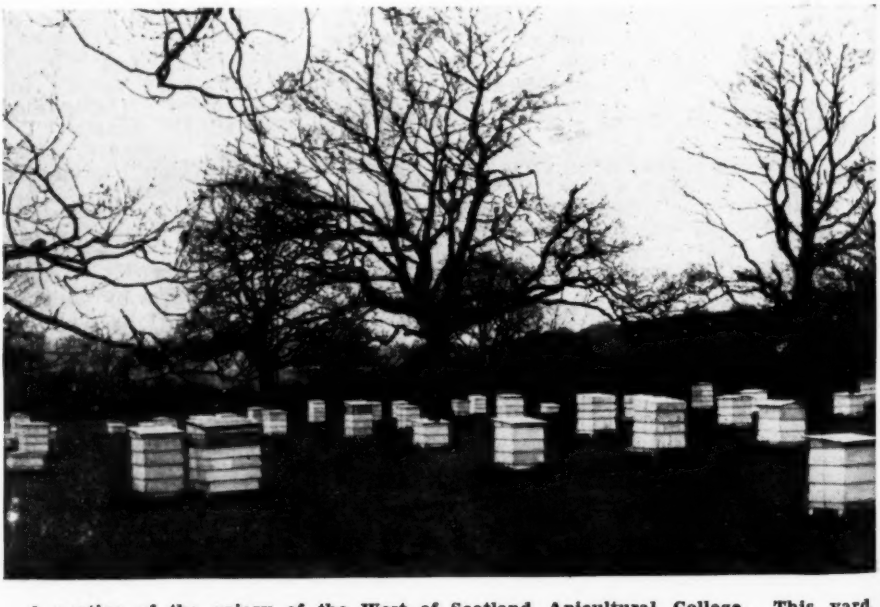
A more economical method of feeding pollen substitute in the apiary is in the form of sugar candy. The sugar syrup is made by completely dissolving two parts of granulated sugar in one part of hot water by volume. Thoroughly mix one quart of sugar syrup with one pound of dry pollen substitute. Use one-half cup less of sugar syrup to a pound of dry pollen substitute if the dry skim milk formula is used. The above mixture will provide about 3½ pounds of candy which consists of one pound of dry pollen substitute, about two pounds of sugar and half a pound of water. To prevent drying cover the candy with waxed paper and pat it down so that it will adhere to the surface. Allow to stand overnight so that the liquid will penetrate the dry particles of food. It is then ready for use. With a wide scraping knife spread the candy over a piece of waxed paper in a layer about one-quarter to one-half inch thick and place directly over the cluster on the top bars of the hive so that the waxed paper is on top. The inner cover of the hive should be inverted to provide space for the candy.

Begin by giving about a pound of the candy to each colony. Repeat feedings every 7 to 10 days increasing or decreasing the amount depending upon the amount consumed the previous period.

Once started, the pollen substitute (either the candy of dry material) should always be available to the bees as long as natural pollen is lacking. Any interruption in the availability of the pollen substitute may cause a setback in brood rearing.

Dried skim milk pollen substitute is less effective than pollen supplement. It can be used in cases of brief emergencies. If pollen substitute feeding is started in March or is necessary for long periods it is advisable to use the dried brewers' yeast formula because it is much more effective.

For detailed information write to the Division of Entomology and Economic Zoology, University Farm, St. Paul 8, Minnesota.



A portion of the apiary of the West of Scotland Apicultural College. This yard is used exclusively for teaching purposes.

The Avoidance of *Bee Poisoning*

By J. E. Eckert
University of California, Davis

The poisoning of bees by the application of insecticides has become a serious problem not only for the beekeeping interests but also for the fruit and seed industries as well. It is generally recognized that the honeybee is an important factor in the production of a majority of our fruit, seed, and vegetable crops. The fact that colonies of honeybees can be wintered over in great numerical strength and moved where needed during the blossoming period of our agricultural crops makes the beekeeping industry an essential phase of our agriculture.

The continued use of increasingly large amounts of insecticides and especially those used in dust form has tended to reduce the number of other pollinating insects as well as the number of colonies of honeybees. This one fact alone makes it important that every precaution possible should be taken to protect the beekeeping industry from the improper use of agricultural chemicals.

Due to the prevalence of bee diseases and to the destructive effects of chemical poisoning, the small farm apiary has largely disappeared. A majority of our colonies are now kept by specialists who depend upon the proceeds received from the production of honey and beeswax. and sometimes queens and package bees, for the maintenance of their homes and families. The destruction of their colonies then becomes a serious problem for the apiarist as well as for the agriculture in his community. To have his colonies destroyed by poisoning is just as serious for the beekeeper and his family as it would be for the orchardist to have his apple crop destroyed for two years running. Beekeeping is a substantial occupation and involves considerable investment and years of experience on the part of the beekeeper. Whether the bees are killed or simply moved out of a given territory results in a definite loss for the orchardist and for many other phases of agriculture due to the absence of pollinating insects.

It is the general rule that one strong colony of bees per acre is necessary to insure proper pollination of our orchard fruit and nut crops but a greater number are beneficial especially if cool and cloudy weather prevails during the blossoming period. This figure has not changed for 20 years or more although the "wild" bee population in our agricultural areas has been reduced by the continued application of poisons. We seldom see the small farm apiary, and colonies in hollow trees and buildings are becoming less numerous. The orchardist must now either own his own colonies, or induce a beekeeper to move in the required number, or supply the necessary pollinators by the purchase of package bees. He can't depend on the wild insects to render this service. The average orchardist has little time to devote to beekeeping and colonies must be cared for properly in order to be of greatest service. In any case the poisoning of the bees has to be considered.

How bees secure poisons: The honeybee may secure chemical poisons in a number of ways:

1. By gathering nectar from plants sprayed or dusted while in bloom. Poison dusts and sprays get into the nectar and onto the pollen. The field bees gathering nectar die in the field, so there is no danger of the poisoned nectar being carried back to the hive or being converted into honey. Should any of the nectar gatherers working on nearby blossoms succeed in returning to their hives it is highly improbable that the nectar would be converted into honey. Just as soon as a bee feels the effects of poisons, it loses its sense of normal reactions and crawls from the hive or is dragged out by the other bees. A double check against the probability of honey being poisoned lies in the practice bees have of converting nectar into honey. During this process, every drop of nectar is handled by the hive bees several times, so if any of it contains poison, the hive bees are killed with it in their honey stomachs. It is fortunate for the fruit industry, as well as for beekeeping, that this is so. Beekeeping would have to be subsidized to furnish bees for pollination at a cost of several times the present rental charges, if the profit received from producing honey is removed.

2. Pollinating bees may gather poisoned pollen and carry it back to

their hives in their pollen baskets. These pollen bearers are not killed in the field unless they also eat some poisoned nectar or collect some chemical that acts as a fumigant or contact insecticide. This poisoned pollen is stored in the brood chamber and kills the nurse bees and brood. As long as any poisoned pollen remains in the combs it constitutes a source of injury to the colony or any additional swarms established on the combs.

3. Water gatherers may be poisoned when they take water from previously poisoned leaves, or watering places into which poisons have accumulated. The first symptoms of bee poisoning is a great reduction in the colony population caused by the killing of the field bees. These dead and crawling bees will be found on the ground around the hives. Then the brood is killed and the colony may dwindle to a mere handful of bees with the queen. If the pollen supply is not poisoned, only the field force of bees will be killed.

4. Bees are also killed by smelter fumes.

The chief sources of poisoning then are fruit trees that are sprayed while in bloom, cover crops that are in bloom when orchards are sprayed, **weeds or other plants over which poisons in dust form may drift,** and contaminated dew or watering places.

The honeybee may fly a distance of several miles for pollen or nectar, but the average flying range is a radius of two miles. So apiaries located within two miles of a source of poisoning may be injured. If no intervening nectar or pollen plants occur between the apiary and the poisoned area bees may fly as far as eight miles to secure pollen and nectar. So when a beekeeper is forced to move his apiary out of a district because of the hazards of poisoning, he has to find a location that is at least four miles from the nearest orchard in order to be partially safe from injury. It is extremely difficult to find such locations since the more desirable are already occupied by other apiaries. If airplanes or powered blowers are used to broadcast poisonous dusts over orchards or other crops in the same vicinity, **the hazards are too great for the survival of the bee industry.**

Bees are susceptible to many of the poisons used as insecticides but are most vulnerable to the stomach poisons. Some chemical substances, however, are more toxic than others while certain volatile compounds are even repellent to bees.

The orchardist and farmer—while they require the service of the bee for the pollination of their crops—must use chemicals and other means to protect their plants and crops from insect injury.

From these fundamental facts a solution must be found that will be mutually beneficial to the beekeeper, the orchardist, and to agriculture in general in the community concerned. So let us try to put this jig-saw puzzle together in the right combinations.

Some possible solutions of the poisoning problem:

1. The beekeeper can keep his colonies out of the poisoned areas at all times and thus avoid all danger of financial loss from this source. An increasingly large number of beekeepers are doing this in various sections of the country athough it greatly increases their operating costs. But this is not the right solution for it will reduce the income of the orchardist and of agriculture by taking away the major source of pollinating insects.

2. The orchardist or seed grower might bring in package bees for pollinating services and kill them when their services are no longer needed. This is being done on a limited scale but there would be only enough bees to service a small fraction of the orchards and seed crops if this practice was resorted to generally. The cost to the orchardist would be much greater than the rental of established colonies.

3. The insect control program in a community might be regulated to reduce the hazards of bee poisoning to an economic level. This involves many important considerations and is actually the crux of the whole situation. It involves not only the spray schedule for orchards but also the application of insecticides to all other crops as well. If colonies are killed in general farming areas, for instance, they will not be available for orchard pollination the following spring. If bees are killed in the orchards, they will not be available for the pollination of the clovers and other crops.

But let us consider, chiefly, the

problem of bee poisoning in connection with the application of insecticides in orchards. The principal considerations in a spray control program for any insect, such as the **codling moth,** are the **chemicals, the timing** and **efficiency** of the applications, **coupled with the sanitary measures used in orchard practice.**

The honeybee is particularly susceptible to the toxic effect of arsenic. Cryolite is less toxic to bees under field conditions while phenothiazine and xanthone or genicide are practically non-toxic to bees. The new chemical DDT (dichlorodiphenyl-trichloroethane) is toxic to bees **both as a stomach poison and contact insecticide.** If it is released for general agricultural use*, without any more restrictions than those applied to our present poisons, it might constitute a definite threat to the fruit industry by the destruction of all pollinating insects. There are many other reasons why DDT should not be released as a general agricultural insecticide but space will not permit further elaboration. Since cryolite, micronized phenothiazine and xanthone have shown definite promise in the control of the codling moth, it would seem plausible that if these chemicals could be used to replace lead arsenate, bee-poisoning might be reduced to a level where the industry could survive in most apple growing regions.

Cryolite in particular has been as effective as lead arsenate in the control of the codling moth, and has not proved as injurious to bees under field conditions.

Cryolite is also effective against the Colorado potato beetle, the flea beetles, most lepidopterous larvae, and chewing insects in general. It may be substituted for calcium and lead arsenate as an insecticide on a majority of our field and truck crops. Cryolite is practically non-toxic to our domestic animals when used as an insecticide in normal amounts and its use does not build up permanent deposits of injurious chemicals in the soil.

Proper timing of sprays. No increased efficiency of insect control is obtained by spraying trees while they are in bloom. This practice certainly kills all pollinating insects and is one of the principal causes of bee-poisoning. If trees are not sprayed until three-fourths or more of the petals have fallen, injury to bees will be reduced to a minimum, blossoms will be pollinated effectively and greater efficiency will result from the application of the spray chemicals.

Cover crops constitute a definite hazard to beekeeping especially if they are in bloom at the time arsenicals are applied. If these could be disced under or cut before the sprays are applied, the loss of many colonies would be prevented and the bees would be saved for pollinating services.

Poisons in dust form are definitely more hazardous than liquids, especially if they are applied by airplane or the horizontal blowers. Such poisons may drift for two miles or more beyond the field treated, killing all bees working in the area over which the poisons drift.

The use of repellents. Many beekeepers have raised the question about the use of repellents in sprays to keep bees from being poisoned. To be effective, the repelling substance should last as long as the poison, must keep the bees away from the flowers and not be harmful to either the trees or to the operator applying the sprays. Such substances would have to depend on their taste or volatility. Volatile substances soon lose their effectiveness on exposure while the stomach poisons must remain effective for long periods. No substance has as yet been found to answer these qualifications.

The use of the airplane and of the horizontal blower types of machines in the application of insecticides in dust form is gradually but surely killing out the beekeeping industry in every region in which it is permitted. The use of such methods are not necessary and in a majority of cases results in 50 per cent or

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* DDT has just been released for general agricultural use by the WPB (Feb. 26, 1945).

[Since the foregoing was written we have received the following letter from Prof. Eckert, under date of March 13, 1945:.—Ed.]

"At the New York meeting all of us left there with the impression that no DDT would be available for agricultural use until after the war. Apparently the manufacturers of DDT have gotten ahead of needed supplies for military purposes and business pressure has caused the release of certain quantities before research on the chemical has been completed.

"Since a quantity has been released for commercial use the first quarter of this year, I predict that like amounts, or even greater amounts will be released in succeeding quarters."

Tired of Old Favorites?

By Mrs. Benj. Nielsen

Honey lemon pie is a super treat for jaded spring appetites. — Photo courtesy of The National Biscuit Co.

Like the weather, appetites are a bit unsettled, unpredictable at this time of the year. All the old favorites seem to pall. And, well—we just don't seem to have any zip! It's so easy to put off starting on the spring house cleaning (next week we'll get at it surely!); that row or two of early peas—tomorrow will be soon enough. In fact, we seem to be "coming down" with a severe attack of spring fever. Just no pep, no energy. And that's just where honey comes into the picture. Given half a chance it can furnish that quick energy—pep, if you will—that early spring finds us so sadly lacking in. Any tomato juice left? I'm going to give you a grand health cocktail, guaranteed to perk up lagging energies. Perfectly super to have on hand in the refrigerator.

Yes, I know, the whole family seems to have finicky appetites, too. You can't even serve the old favorites with any approval. Are you a sugar or a syrup cook? Well, just try switching to honey and see that family sit up and take notice! Honey imparts an intriguing flavor entirely different from any other sweet—from meats to dessert. And, since this natural sweet requires no digestion before entering the blood stream, it is indeed a quick way to provide that much needed spring pep. And it's so much more pleasant to take than the sulphur-and-molasses spring tonic of grandmother's day. One tablespoon of honey will provide 100 calories—that's concentrated energy.

So if you're tired of all your old favorites, give these honey-flavored treats a tryout.

Honey Tomato Cocktail

Combine 1 gallon of thin tomato juice, ½ cup honey, 1 teaspoon cinnamon, ¼ teaspoon cloves, and boil gently for 10 minutes. Then stir in the juice of 2 lemons. Chill thoroughly.

Corn Flake Waffles with Honey

Three cups Corn Flakes, 1½ cups sifted flour, 4 teaspoons baking powder, 1 teaspoon salt, 2 tablespoons honey, 2 eggs, separated, 1¾ cups milk, and ¼ cup melted shortening.

Crush Corn Flakes into fine crumbs. Mix with sifted dry ingredients. Add honey to egg yolks beaten until thick, add milk, dry ingredients, and shortening. Stir only until combined. Fold in stiffly beaten egg whites. Bake in hot waffle iron until brown and crisp. Yield: 7 waffles (6½ inches in diameter.)

Honey Lemon Pie

One tablespoon gelatin, ¼ cup cold water, 3 egg yolks, 3 tablespoons honey, ⅓ cup lemon juice, ¼ teaspoon salt, 1 teaspoon grated lemon rind, 3 egg whites, 3 tablespoons honey, ¼ cup seedless blackberry jam, and 12 graham crackers.

Soak gelatin in cold water 5 min-

utes. Beat egg yolks slightly and mix in honey, lemon juice, and salt. Cook over hot water stirring constantly until mixture coats a silver spoon. Add gelatin and stir until dissolved. Cool until thick and syrupy. Add lemon rind. Make a meringue of egg whites and honey. Fold into thickened gelatin mixture. Line 9-inch pie plate with graham crackers cut to fit plate. Fill openings between crackers with crumbs from left over pieces. Turn filling into crust. Chill. Before serving, spread blackberry jam lightly over top.

Savory Stew

Three pounds of stewing beef, 3 teaspoons salt, ¼ teaspoon pepper, ⅓ cup honey, herbs or spices, 6 onions, 6 carrots, 6 potatoes, and 3 tablespoons flour.

Cut meat into cubes and brown in heavy kettle. Cover with hot water, add seasonings and honey. Simmer gently for two hours. Add vegetables and cook until tender, about 25 minutes. If a thick gravy is desired mix the flour with a little cold water making a smooth paste. Stir into the liquid gradually.

Honey Baked Beans

Four cups navy beans, 3 teaspoons salt, 1 onion, ⅓ cup honey, 2 teaspoons dry mustard, ¼ teaspoon ginger, ½ cup catsup, and ½ pound salt pork.

Wash beans and soak over night. Add water to cover, then salt and onion. Simmer until beans are tender. Drain, saving the liquid. Combine honey, spices and catsup and 2 cups of the bean liquid. Scald and scrape the salt pork and score it with a sharp knife. Place a piece in the bottom of the casserole or bean jar. Add the beans. Place remaining pork on top of the beans. Add the honey mixture and additional bean liquid to cover. Bake at 250 degrees F., for 6 hours. A long time but decidedly worth it! Uncover dish for the last half hour of baking.

Honey Custard

Two cups milk, 2 eggs, beaten, ⅓ cup honey, 1 tablespoon sugar, ⅛ teaspoon salt, ¾ teaspoon vanilla, and nutmeg.

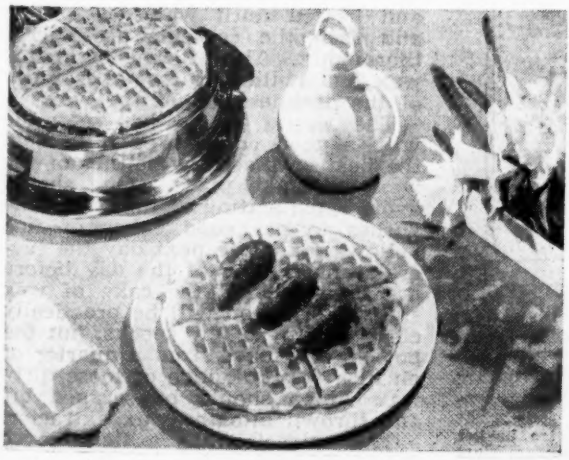
Combine all ingredients and pour into greased custard cups. Sprinkle top with nutmeg and bake in moderate oven, 350 degrees F., 30 minutes. Chill before serving. Serve with graham crackers.

Honey Filled Cookies

One-half cup shortening, ½ cup brown sugar, ½ cup honey, 1 egg, ¼ cup sour milk or buttermilk, 1 teaspoon soda, 1 teaspoon baking powder, ½ teaspoon salt, 1 teaspoon cinnamon, ¼ teaspoon cloves, ¼ teaspoon nutmeg, 2¾ cups sifted enriched flour, ½ cup crushed Rice Krispies, ½ cup honey, 1 teaspoon flour, and a few grains of salt.

Cream shortening and brown sugar together, add honey, the egg beaten, and the sour milk. Sift together the flour, soda, ½ teaspoon of salt, baking powder, and spices and add to first mixture. Mix thoroughly. Chill dough. Roll out thin, cut in strips about two by four inches. Spread one-half lightly with the filling and fold over to make a square. Bake in a moderately hot oven, 375 degrees for about 20 minutes.

To make the filling mix together the crushed Krispies with the honey, one teaspoon flour and a few grains of salt.



Don't these corn flake honey waffles make you hungry?—Photo courtesy of the Kellogg Co.

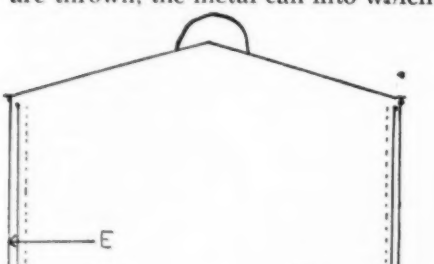
Rendering *Beeswax*

By Allen Latham

On page 526 of the December, 1944 issue of Gleanings is an article about rendering beeswax. I used that method for several years but finally thought up better ways. Not less than three times in my 61 years with the bees have I come very close to burning up either shop or dwelling.

It might not pay a beekeeper who has less than ten hives of bees to have a safe and easy device made to render his wax, but it surely will pay anyone who keeps bees on a large scale. Personally I detest all methods that require compression to get the wax from odds and ends of combs that are melted up. Several years ago there was an article about this subject in which the writer described a device that he had made, and his description gave me the key to a most successful wax extractor. It not only gets most of the wax but it gives clean yellow wax. I save the slumgum and when I get a barrelful of it and old brood combs I send the same to one of the foundation-making firms and let them do the dauby work.

The diagram shown is a cross-section to show the wire basket into which the comb refuse or cappings are thrown, the metal can into which the wax melts, with the slanting bottom and the outlet, and, lastly, the outer container in which water is boiled to make steam to melt the wax. This device is nearly 100% safe so far as rendering wax in the shop is concerned. The only possible chance of accident is possible if the beekeeper goes off and leaves the device for many hours on a hot stove until all water is evaporated and the entire device becomes so hot that the slumgum inside catches fire. The melted wax runs off into a can which does not touch the stove.



A. Outlet for melted wax.
B. Vertical cross-section of outlet to show that inner portion has no top.
C. Wire basket into which bits of combs and cappings are put.
D. Inner container of copper.
E. Outer container.
Wooden slats are fastened to wire basket to hold it away from the can. Bottom slats run toward the outlet.

I can render easily 60 pounds of wax in a day with mine and if I were to push steadily I could render 100 pounds.

The wax is drained off into a topless 5-gallon can into which a little hot water is poured. To keep the wax from solidifying in this can there is set beneath it a small electric stove which gives heat enough to keep the wax melted but not enough to cause boiling over. Even if it should boil over it would cause no fire but would make a mess on the floor. When 10 to 15 pounds of melted wax is in the can another can is set beside it and a strainer is placed on this second can. The melted wax is skimmed off the first can onto the strainer until only a little wax is left in can number one. The second can is then set on an electric stove (I mean one of these little ones about nine inches square) and heated until water is boiling and then the contents are stirred thoroughly. This stirring of melted wax and boiling water takes much of the darkness out of the wax.

The second can is then set aside with a good cover over it to hold the heat so that slow setting of the wax will take place. One should avoid rapid setting of the wax if he wishes to get good cakes of fine yellow wax. The next day the several cans of wax of the day before are inverted and the cake of wax slid out. The top will be practically clean barring a few specks, but the bottom will have from a quarter of an inch to a full inch of loose dirty wax which should be scraped off and thrown into the wax extractor.

The extractor has a tight cover

(Continued on page 173)

How an Illinois Farmer Operating 90 Acres Runs 157 Colonies on the Side

Let-Alone Beekeeping

By John Bruce

The man who keeps bees as a sideline must do away with a great many superfluous maneuvers if he expects to accomplish much at either his sideline or his regular business.

It is necessary to have plenty of supers to hold a reasonable crop for the territory in which you operate.

Equipment should be kept in readiness for a crop and may be prepared in advance.

You should have a hive of adequate capacity to accommodate a good laying queen, and containing good brood combs built on foundation well wired to prevent sagging and breaking down. This will lessen the tendency to swarm. The hive need not be any particular size or kind. You can use eight frame, ten frame, Standard, Quinby, Dadant, or any that may be in vogue in your locality. Approximately two eight-frame hive bodies is the least you should consider for a brood chamber.

Extra space will do no harm if the hive holds food enough to ward off starvation in case of a dearth of honey for a moderate length of time. Two ten-frame bodies accomplish this even better. Furthermore, the extra large colonies produced without fussing and feeding will more than repay for this equipment.

Colonies can be managed with only three or four examinations of the brood chamber each season. After some experience one can get along with only one or two general examinations during the year. The first one comes before the first supers are put on. At this time you examine for brood diseases and signs of swarming or supersedure.

On top of the double brood chamber we put our queen excluder, if one is used, then the supers. If you cannot make another visit for some time place on enough supers, **then one or more extra for possible extra honey.** You lose nothing by leaving extra ones on, but if you do not have enough you lose honey, you lose the readiness of the bees to continue storing surplus, and you finally lose a swarm of bees.

Next is the removal of light honey and examination of the brood chambers for diseases, failing queens, sagging combs, etc., in time for the colony to start their winter build-up. Then supers are again supplied, if needed, and the bees are left to their own devices until after the last of the flowers have disappeared. Now is the most important time for the **let-alone beekeeper. Be sure that at least one deep super full of honey is reserved for each colony for winter stores.**

Turn the bottom board over to the small entrance to exclude mice or put the entrance cleat upside down in the deep side of the bottom. A shallow super of leaves with a heavy cloth bottom is a good part of the packing for winter. If you are located where the temperature drops below zero and stays for over a week at a time, then the rule is to pack all around. Use any kind of packing that fits your needs.

This is the routine I follow with most of my bees as I am a farmer beekeeper and find time to take on extra work, such as caring for more bees, carpenter work, auto repairing, etc.

By this method of apiary management I have nearly always doubled my state's average honey production, and often more than that.

Chesterfield, Illinois.

[Providing an abundance of stores for each colony, and an ample number of supers a little in advance of the time they are needed seems to be the secret of success for Mr. Bruce.—Ed.]

OUR COVER PICTURE

A virgin queen just after emerging from her cell at the right. She begins to walk around on the comb and pokes her head into cells until she finds one containing unsealed honey, then takes a sip.

What I Learned About *Installing Packages*

By Ernest Finn

When I heard a few days ago that a friend of mine had decided to keep bees and was going to purchase some two-story wintered-over colonies, it occurred to me how different his introduction to beekeeping will be than mine was.

When I started to keep bees in 1938 I purchased two new hives and two packages of bees from the South. Having no drawn combs, I had to install the bees on foundation only. It was necessary to feed sugar syrup, of course, which I now regard as a nuisance to be avoided whenever possible at all times. But this was perhaps the least of my worries. In installing I had used the time-honored method of removing five frames, hanging the queen cage between two of the remaining frames, and setting the shipping cage, with the top removed, in the space left by the removed frames.

When I examined them six days later I found that in one hive the bees had ignored the foundation and had built a comb between the two frames where the queen cage was suspended and in the other the bees had released the queen from her cage, had taken her into the shipping cage, and had built five combs across it, from whence they were going out of the cage, through the hive and out-of-doors, returning later with nectar and pollen to the shipping cage! (See P. 138, Gleanings, March, 1939.)

If I were installing package bees today, I should follow the plan I used the following year, which is to gorge the bees with sugar syrup, remove the queen cage from the package, take the wire screening from one side of the package, and shake all the bees into the open hive. Then release the queen at once and let her run down the side of a frame. Close the hive immediately and leave it alone for at least a week.

A beginner might find it difficult to muster the courage to do this (I remember how I trembled the first time I introduced package bees, especially when I had never even seen the inside of a hive of bees before), but this method not only prevents the bees from building combs anywhere but on the foundation, but makes sure that the queen is released and will start to work in a short time, whereas if it is left to the bees to release her she may still be confined when you open the hive in a week's time.

Shaking the bees out of the cage may sound like a risky business but its not. Providing you have fed them sugar syrup by brushing it on the cage beforehand, they will be quiet and will fall into the hive in a mass, instead of flying up as one would expect. It is not wise to leave it too late in the evening before installing the bees because any which are spilled on the ground in the gathering dusk will crawl up your legs and will sting if squeezed but neither is it wise to install bees in bright sunlight as they may drift from one hive to another.

Etobicoke, Ont.

[It is well, before releasing the queen to dip the cage in warm sugar syrup so that the queen's wings may get wet so she cannot fly away.—Ed.]

SHIPMENTS OF PACKAGE BEES IN 1944

A total of 1,128,000 pounds of package bees were shipped in 1944—6 per cent more than in 1943, according to the Bureau of Agricultural Economics. Reports from 118 of the larger package bee shippers indicate that in 1945 they expect to exceed their 1944 shipments by 7 per cent. Shippers in the Georgia, Alabama, and Mississippi area expect to exceed their 1944 shipments by about 2 per cent and those in Louisiana, Texas, and California by about 13 per cent. In early January, shippers had orders on hand for 79 per cent of their expected shipments this year. Of the total pounds of bees shipped in 1944 about 41 per cent moved in 2 pound packages, 54 per cent in 3 pounds, 3 per cent in 4 pound, and 1 per cent in 5 pound packages. Bees shipped in units other than those mentioned accounted for about 1 per cent of the total pounds shipped.

Shippers reporting both 1943 and 1944 indicate that shipment of queens in 1944 was about 29 per cent greater than in 1943.—From the U. S. Dept. of Agri., Bureau of Agri. Economics, Washington, D. C., March 1, 1945.

Eighty Years Among the Bees

By E. R. Root

The Evolution of a Bee Smoker

[The following had to be left out of the last issue because a lot of other material came in at the last minute.—Ed.]

I made a little slip in my last article. I said I asked my father for a bee smoker and a colony of bees. I would not mention this but some fellow older than I would see that my historical setting needed a little revising. There were no bellows smokers in that day (1870).

Of all the indispensable implements for the bee yard, is the bee smoker, and strangely enough, the bellows smoker did not appear until ten years after the honey extractor and five years after comb foundation.

The first bee smokers had no bellows. Moses Quinby in his book (1866) describes an implement consisting of a tin tube with a wooden nozzle on each end. After the burning fuel had been put into it, one could put this tube in the mouth and blow the smoke through the other end.

Well, why didn't my father use an implement of that kind? I'll tell you—you would use it just about once, after you had been strangled, for ordinary burning of rotten wood or old rags emits a smoke that is awful, while the smoke from tobacco in a cigarette or a pipe is soothing, so they say. I don't smoke.

It was not until 1875 that Quinby hitched a bellows to his stove, and not until 1877 that improved Quinbys were advertised by T. F. Bingham and A. I. Root. Then everyone had smokers to sell. (See back volumes of American Bee Journal and Gleanings in Bee Culture for 1878.)

As progressive a man as A. I. Root, among the first to adopt new ideas, he did not use a bellows bee smoker until 1875, and that was a Quinby. The trouble was it would

Fig. 1. The original smoke tube of Quinby 1866 and his bellows smoker of 1875 or nine years later. It is indeed remarkable that an implement that we consider so essential today had to wait nine years before a bellows was attached to it.

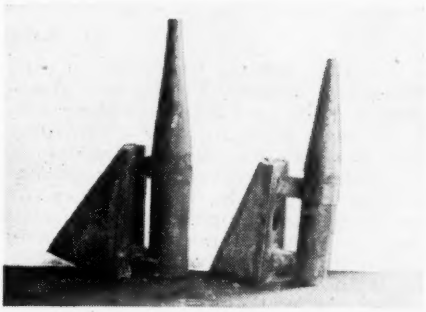


Fig. 2.—The originol bellows smoker that Quinby brought out in 1875. It had one serious defect in that it had a tin tube from the bellows to the fire cup. When not in use the smoker would "go out" because there was no circulation of air between the stove and the bellows. It acted like a stove with the damper closed. That tube in A. I. Root's first Quinby broke loose and then it didn't "go out". A. I Root and T. F. Bingham soon thereafter made smokers without the tube. When the air could shoot into the larger hole in the stove the problem was solved. Mr. Bingham got a patent on the idea.

"go out," not the smoker but the fuel. Bingham and Root soon discovered that there should be an opening in the bottom of the fuel chamber. In other words, there should be no tube connecting the bellows to the fire-cup. The absence of such a tube made the bee smokers then perfectly practical.

It didn't occur to A. I. Root in the early days that he might make a bellows bee smoker but he worked on another problem toward the same end. He invented a bee hive that required neither a bee smoker nor a hive tool, one that could be opened with perfect safety from stings, and therefore he reasoned why bother with smoke. He had been using, very unsatisfactorily, a pail hooked on one side of the hive, filled with burning fuel. When the wind was right it would blow the smoke over the top of the hive but more often into the eyes of the operator, at any rate, just where you did not want the smoke. Hence, the hive that did not require smoke. I'll describe this in our next issue.

Cold Blast Smokers

Beginning about 1878 all bellows bee smokers used the hot blast prin-

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From the Field of Experience

CAN WE BEEKEEPERS BUILD OUR OWN FUTURE?

By Ralph W. Barnes

At the annual meeting of the **Nebraska Honey Producers' Association** held in Lincoln, Nebr., Feb. 1, it was brought out with force that it is possible for the beekeeper to materially increase the amount of bee pasture in his territory by an intensive campaign of advertising the value of honeybees in seed production. Last year we were faced with the fact that most all the clover as well as a lot of alfalfa acreage was being plowed up for corn. Our Association appointed a committee to see what could be done to help ourselves.

John Tideswell, of **Omaha, chairman** of this committee gave his report as follows: The committee met with the State Highway department and explained the value of bees and asked that all clover plants growing along highways be left until after the blooming period. By pointing out that this would contribute extensively to the amount of pasture available to bees, it would help support a larger number of colonies in the farming communities where they were needed. The department was glad to cooperate with us.

County commissioners were also contacted and they cooperated in many counties. They also contacted all certified seed growers and their organizations, and explained the value of honeybees in seed production. Dairy associations were given facts and figures concerning the value of sweet clover as a pasture plant. Thousands of copies of the Ohio pamphlet "Honey Bees Increase Clover Seed Production Fifteen Times" were distributed. Many individual beekeepers sent these pamphlets to every farmer in the territory where they had bees.

All of this was done just before plowing time, then during the last week, radio time was taken on a station that served a large section of the farming community. The scarcity of seed was stressed three times a day for a week. It was also pointed out that every farmer should produce the seed he would need for his next year's operations. The net result was that even though Nebraska produced the largest crop of corn in history there was left enough clover and alfalfa to produce a good crop of honey. Many beemen moved to other states only to find that the home apiaries did much better.

There is one thing about such a campaign that must not be overlooked by the beekeepers located there and one to which they must pay attention. As soon as seed producers learn of the real value of the bees they will want to obtain enough to pollinate their crops. This is an obligation that we are morally bound to respect and it becomes our duty to supply the bees whenever possible. This should be done even though it involves trouble and expense.

[Every county and state association should strive to emulate the example set by the Nebraska Honey Producers' Association.—Ed.]

SHALLOW FOOD CHAMBER NOT LARGE ENOUGH

By James N. Seys

I wish to denounce the shallow super as a food chamber in cold countries where zero weather may last for several weeks without a break. I lost one colony the past winter at Waukegan, Ill., from just that cause. The bees consumed all the honey in the shallow super and would not move down to the deep body because of cold. Also it was too cold for them to move honey up from below. They starved with lots of good honey just below them. Had there been a deep super full of honey instead of the shallow they would have had enough honey to outlast the weather.

Weslaco, Texas.

[We, too, have come to this conclusion. At one time we used shallow supers for food chambers. We now use full depth or deep supers for food chambers. If, perchance, there is some honey left in these food chambers at the beginning of the main flow, the honey is not lost. It is mighty good insurance against starvation and helps to produce populous colonies.—Ed.]

Part of Mrs. Snyder's bees mounted on the roof of her small beekeeping house

Mrs. Nora T. Snyder who describes herself as a "farm woman from Kentucky".

HOLLYWOOD BEE FARM

By Clarence Tontz

About a five-minute walk from the heart of Hollywood's busiest business district is a miniature "farm" on which bees play an interesting part.

On the "farm" which is about 100 feet wide by 150 feet long and which is located very much "in town" are raised bees, chickens, rabbits, canaries, a garden containing several kinds of berries in addition to the vegetables. There is a great variety of flowers.

Owner and proprietor is Nora T. Snyder who bought the lot when Hollywood was still young and undeveloped. The soil on the lot was hard and cracked by drouth and hardly a blade of grass was growing on it when she bought it. She and her husband covered it with a layer of rich soil, then gave it plenty of fertilizer and water. She has been raising things on it ever since.

The bees are a relatively new addition. Mrs. Snyder, with the aid of a high school lad, got her start with bees by capturing and hiving stray swarms. All of her equipment is new and well painted with aluminum paint.

Mrs. Snyder had taken some honey from the bees and she asked me to heft each hive to see if I thought they had enough for winter. After hefting each hive (they were so heavy they felt as though they were nailed down) I assured her she would not fail to make a success with bees if giving them plenty of winter feed was one of her virtues.

Although living in a thickly settled district, Mrs. Snyder said she had had no complaints from anyone getting stung. She uses queen excluders to keep the queens out of the surplus honey supers so that the bees will not be stirred up so much when taking off honey. She plans on using bee escapes to further facilitate the removal of honey. All of this will help keep down complaints in a crowded area. Probably even the gentlest bees if stirred up too much in the city would be highly tempted to sting somebody mainly because there are so many handy to sting.

Los Angeles, Calif.

DID YOU PROVIDE AN UPPER FLIGHT ENTRANCE?

By M. E. Oplinger

Did this winter's snow and ice show you as it has shown me the folly of trying to winter bees outdoors here in the North without an upper flight hole of ⅝" in the food chamber? The beekeeper who didn't provide this upper entrance, may learn a very costly lesson because his winter losses will no doubt be very heavy, due to his bees smothering from ice packed lower entrances.

Yesterday I visited one of my out apiaries that I have not seen for weeks. The snow drifts were piled high around the hives and when I scraped the snow away from the lower entrances, they were frozen shut and had been that way for weeks. It was a warm sunny day and the bees were flying from the upper flight holes taking a much needed flight. Had I not provided this flight hole I think the situation would have been different. No doubt I would have lost 80% of these bees by smothering. As it is, bees were flying from every hive in this yard.

I don't pack my bees and the only protection they have is a good windbreak. My winter loss for the past five years never ran more than 9%. I always leave "millions of honey" and pollen on **all** my hives for winter (two or three stories), give them an upper flight hole, and when Old Man winter takes charge I don't have to worry how my bees will winter for I know they are well provided to combat the ice, snow, and cold weather.

South Bend, Ind.

[We have found that the sun usually melts ice from the lower entrances to let bees out if entrances are not clogged with dead bees. Reducer blocks should have notches facing up so that openings will not clog so easily. However, we do like to have the two story hive equipped with upper ⅝" flight hole, just below the hand hold in the upper brood chamber. Bees can get out easily for a flight.—Ed.]

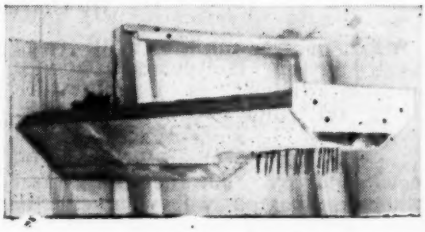
TIME SAVING NAIL JIG

By Walter H. Hull

When nailing up hives, frames, crates, or boxes of any kind a jig that will line up the nails ready for use is a worthwhile convenience. It is best made out of sheet metal, which, however, calls for some metal working skill and equipment not always available. A wooden jig like the one shown will do fairly well.

It consists merely of a trough made by nailing one board onto the edge of another but leaving ten or twelve inches at one end free—not nailed. In this free space make a vertical saw-kerf large enough to permit the shank of the nails to fall through but small enough to retain the heads, so that the nails will hang free. Shave off the surplus wood at the bottom and tack a strip across the end as shown, leaving an open space below the strip for withdrawing the nails. At the other end of the trough nail securely a piece of board of convenient size, preferably with cement-coated nails so that when this board is tacked to the wall the trough will be held securely in place. The jig is now ready for use.

Tack it up in a convenient place, fill the back end with nails and



The nails fairly fall into the right place.

brush them forward with your hand a few at a time as needed. After a little practice you will find that you can take out four or five nails at a time between the thumb and finger of the left hand and start each in succession just where you want it with no delay. This plan is used, among other things, in nailing up apple boxes, and an expert will keep his hammer swinging steadily with no pause between one nail and the next. It not only saves time but makes the work so much easier than picking up each separate nail that you will almost be sorry when the job is done.

Bath, No. Car.

HAPPIER ADVENTURES

By F. L. Shoemaker

My article "Adventures in Beekeeping," (Gleanings, February, 1945) ended on a sorry note. Beekeeping, as far as we were concerned after two years' experience, provided plenty of fun and adventure but the financial ledger was decidedly in the red. And the merchants we deal with are too mercenary minded to accept our fun and adventure as legal tender. But 1944 was another year.

Only two major disappointments were experienced. We kept two of our 16 colonies at our residence in town, the other 14 being on our farm three miles east. One of these two colonies contracted AFB and had to be destroyed—our first experience with this dread disease and we trust our last. The second misfortune was due to climate. A drought started in this vicinity about June 25 and shortened the honey flow by about three weeks. Despite these two reverses, we secured 700 pounds of excellent comb honey from 13 producing colonies, an average of nearly 55 pounds per colony—and that despite the fact that each colony drew seven frames in the food chamber. Our five best colonies produced over 350 pounds of honey. During the fall honey flow we added enough food chambers to nuclei to increase our colonies to 21, each having two hive bodies. We reared 12 new queens during the year, seven from supersedure cells.

Our beekeeping adventures started in April, 1942. After three years, we have 21 hives, all new but one, five additional bottoms and tops, and 40 comb honey supers. The proceeds from the honey have covered two-thirds the expense for bees and materials.

Athens, Ohio.

REGULATIONS FOR SHIPPING BEES INTO CANADA

Thousands of package bees and queens are imported into Canada each year from the United States and the number increases annually. In order to avoid losses it is imperative that these bees and queens reach the consignee with the least possible delay, and so far, very little difficulty has been experienced in this direction. During the past two or three years, however, a few shipments of both package bees and queens have been received minus the food certificate required by the Canadian regulations. These shipments have been detained at ports of entry until release has been authorized from Ottawa. Such release has always been granted upon condition that the required certificate be obtained from the shipper, this extra delay, however, may easily cause serious losses. It is realized that at the moment the shippers are working under difficulties and that during the rush season some detail can be easily overlooked, but the writer would urge all shippers to make sure that a food certificate, as required by the following clause in the regulations, be attached to all packages of bees or queens destined for Canada. The State certificate covering the inspection of the apiaries from which the bees come is not sufficient.

Clause from Regulations

"The importation of bees in combless packages is also prohibited unless such packages are accompanied by a declaration signed by the shipper that the food supplied to the bees and carried in the packages is free from disease."

Attention to this matter would be greatly appreciated.

—C. B. Gooderham, Dominion Apiarist, Ottawa, Canada.

"A real beekeeper's year is as long as the burley tobacco grower's—13 months. The extra month should be spent in planning."—Carl M. Teasley.

"I never counted my bees as being on my time sheet until they started paying for themselves—with interest."—Carl M. Teasley.

RATIO OF WINTER STORES TO SURPLUS

By E. R. Root

Sometimes it appears that more interesting matter passes in correspondence than that which finally reaches the printed page. Some correspondence has been occurring between the writer and Dr. C. L. Farrar, of U. S. Department of Agriculture, Madison, Wisconsin, on the ratio of winter stores to surplus. He holds that that surplus is dependent upon the amount and quality of winter stores.

If, according to modern orthodoxy, it takes from 40 to 60 pounds of honey and from 4 to 6 combs of pollen to winter a colony and the average annual surplus per colony in the U. S. A. is around 40 pounds, we begin to wonder if the amount is justified.

Some have written asking if 50 and 60 pounds of winter stores isn't high. Phillips and Demuth, 30 years ago urged 40 and 50 pounds per colony. We called Dr. Farrar's attention to this and raised the question as to the possibility of having air-conditioned cellars to cut down the consumption of winter stores. Dr. Farrar's answer is so interesting that we are giving it here: (We quote from his letter of Feb. 20, 1945).

I find it difficult to answer all of the interesting questions raised in your letter of February 15. It would seem worthwhile to do some experimental work on the wintering of bees in air-conditioned cellars. The Division does not have resources for such work at this time.

I feel certain that there is too much concern over the difference in consumption between colonies that require 10, 20, or even 30 pounds than those that require 50, 60, or more pounds. We have wintered a good many colonies on less than 30 pounds of honey but we find colonies that consume less than 50 pounds in a normal year are inferior. The high consuming colonies are in so much better condition that they make gains from early sources of nectar, whereas the small colonies often do not even maintain their weight. As a result, the strong colonies will usually have less honey charged against their maintenance from the end of brood rearing until the beginning of the main honey flow than those that actually consume less honey during the overwintering period. Furthermore, they are stronger and make greater gains during the main honey flow.

There are very few seasons that do not produce at least a short honey flow, one that is adequate to permit the strong, high consuming colonies to replace their required reserves and store a surplus. This past summer the honey flow was about as poor as one is likely to experience in regions capable of supporting commercial beekeeping. Our package colonies on the average, failed to produce a surplus. The stronger ones replaced all of the stores provided in the spring plus the 60 pounds required for winter and an average surplus of about 40 to 50 pounds, with the maximum 113. The strong overwintered colonies made gains two to three times those obtained from the best packages and our best yields from two-queen colonies reached 250 pounds in the poorest location and 356 pounds in the best yard. On this basis we do not consider that the high consumption necessary for the overwintering of strong colonies was expensive.

The problem is not one of how much honey is consumed, it is a question of how much they store above their consumption. On the average, our colonies consume from 50 to 55 pounds between the first week of October and the last week of April. Because the best colonies frequently consume more than the average, we are now recommending leaving a reserve of from 70 to 90 pounds, preferring that the majority of colonies have more than 80 pounds of honey. These reserves represent a form of insurance. If they do not consume all that we leave them, it simply means that they have to store less to build up their reserve for the next year. If they consume most of what we leave them, they will be stronger during whatever honey flows develop and make the most profitable gains.

Our recommendations for feeding pollen supplemented with soybean flour are raising the level of required food reserves. They are practical because the stronger colonies return a larger surplus.

Dr. Farrar hits the nail squarely on the head when he says "It is not a question of **how much** honey they **consume** but **how much** they **store above** their consumption." Note particularly the next to the last paragraph. The point we wish to make is this: If you are liberal with the bees they will be liberal with you—that is, in a fair to good honey locality.

No real scientific work has been conducted on the possibilities of air conditioning for a bee cellar where the temperature could be kept at a point where the bees would go into semi-hibernation to avoid consumption of stores.

Air conditioning of cellars might cost too much especially for out yard bees that would have to be moved from 10 to 50 miles back and forth. We could not have an air-conditioned bee cellar at each out yard.

On the other hand, if the air surrounding a cluster of bees, either in the cellar or out of it, could be controlled to a point of 57 degrees throughout the entire winter, losses would be practically nil. Bees die because they cannot stand the great range of temperatures during severely cold winters that come in cycles of five or ten years.

SECOND GLANCES

By C. M. Isaacson

Labor is a large item in the production of package bees. Mr. Shackelford's article (page 81) makes that clear, and helps to a better understanding of the work necessary before we receive the packages we order so matter of factly. One item mentioned—annual requeening—is probably more needed in producing bees for sale quickly than up in the more northerly honey producing regions, where the build-up is short and rapid, with a following rest for the queen.

The subject of bee poisoning is always a pertinent one these past years (page 84). Those who have lost colonies thru this cause should take note of the caution against placing packages in hives likely to contain poisoned pollen. And the ten recommendations given, if followed carefully, would go far towards relieving this problem, which is growing more serious every year.

Pollen supplements for especial purposes can be of definite value, as Mr. Newell points out (page 85). His experiments in feeding supplements tend to bear out the claim for them, and if increase or extra bees are needed, beekeepers may well give soy meal feeding a trial—it seems to be an efficient **supplement.**

A successful extremist. That might aptly be the title of Edgar Williams' article, if indeed, the word "extremist" is justified at all. For what is "orthodoxy" but a set of conditions found true as a rule—not invariably or indefinitely. Localities vary, methods change as time passes, and Mr. Williams is right, it would be bad if we all saw alike—bad for progress (page 86). Yes, brood chambers can be too large, and in some localities there is a surplus of pollen. A question—if this could be gathered and shipped economically, would it not be a boon to regions of scarcity?

Consumer acceptance of honey through wide publicizing of a few well known brands rather than a multitude of local ones may be a big assistance in solving the post war marketing problem we expect. Why **not** take advantage of an already widely established name? C. O. Kramer raises an interesting point for discussion (page 87).

There ought to be a law against such enticing words as Mrs. Nielsen uses to preface her monthly recipe pages. And a law telling each beekeeper to use those recipes—he would truly become his own best advertiser then.

Winter proof colonies could perhaps be developed from the one told of in A. N. Norton's item (page 90). But seriously, he is right—a properly conditioned colony **behind a good windbreak** can stand a lot of adversity.

Winter cluster movement is very slight says Joseph Tinsley in his report from Scotland (page 91), confirming what V. G. Milum stated in an earlier issue of Gleanings. Old hypotheses are constantly being modified. Here is a solid reason for a concentration of honey in a small space, where it can be reached easily, rather than an overabundance of room and spread out stores.

Standardized pollen seems to be the aim expressed in One Man's Opinion, and he wants to attain it by a completely artificial substitute. That is logical reasoning. But if pollen varies in nutritional value, might not soy flour also—in ways difficult to detect? Just a question. It is true with poultry feeds at times.

The principal objective in beekeeping has been well stated by Editor Deyell—producing the largest possible amount of wax and honey (page 94). And may I add —with the least labor necessary, **and** the maximum of pleasure in your work?

The bees' worst enemy. The editorial on page 97 certainly tells the truth. The beekeeper himself can be just that. Let us try to direct the bees in our management, not force them. In other words, use **their** instinct to **our** advantage.

Bee pasturage is lessening (page 98.) This is not a pleasant statement, but very true in many places. The causes are several, and in our locality the clover weevil is a big one. Beekeepers should give serious thought to this whole problem.

Caution in releasing DDT for general use is certainly desirable. From all we have heard as to its extreme deadliness, much research needs to be undertaken before its widespread use, lest beneficial insects be severely affected (page 101).

Middle River, Minnesota.

DOES BACKYARD BEEKEEPING PAY?
Yes, if Properly Managed; No, if Neglected.
By C. H. Pease

That first article in the January Gleanings under the above caption prompts me to submit another proof that backyard beekeeping does pay, even on a much smaller scale and under conditions very different from those described by Mr. Woodson.

First of all, bear in mind that Connecticut is not a good honey state, and the average yield per colony is only around 35 to 40 pounds.

Most of the beekeeping in our state is of the backyard brand, as only six of the more than two thousand beekeepers have as many as 50 colonies. A great proportion are in the one or two colony class, especially among farmers, who generally pay little attention to their bees, in spite of the fact that they have nothing on their farm that pays anything like the wages the bees do for the time and labor spent with them.

I will cite one case in which a boy on a farm received nearly $20 worth of honey for less than one day's work, easy work, too—but here's the story:

Relatives of ours, living 60 miles from us, are farmers and great lovers of honey. A few years ago I interested them in producing their own honey supply, and clinched my argument in favor of the idea by saying that, provided the season was favorable and they had a good colony of bees, with proper treatment it would be possible to secure nearly a hundred pounds of honey. They laughed at my "exaggerated idea" because Connecticut is a poor honey state and they never heard of a farmer, or anyone else, in this part of the country, getting so much honey from one colony of bees. However, they bought a three-pound package of bees and queen, and I coached them by mail, during the summer, telling them what to do at certain times.

When the supers were taken off in the fall and the honey extracted, they found themselves supplied with less than two pounds short of my estimated hundred, in other words, a few ounces over 98 pounds of surplus honey.

Their 20-year-old son cared for the bees, and when questioned as to the amount of time spent with them during the summer, he agreed that the total hours would not exceed half a day, which, added to the time spent preparing the bees for winter and in the early spring, would not equal a total of one day's work. As local honey always sells for not less than twenty cents a pound in our state, their income from that one colony of bees was approximately $19.60. But they have not harvested a crop like that since because the young man "don't like bee work," and, without the coaching, the work was neglected, swarms were lost, wax worms destroyed the combs, and their beekeeping, together with the income of almost twenty dollars a day, petered out.

I could cite similar cases but they all tell practically the same story.

Canaan, Conn.

A Cat Looks at the Bees

This picture was taken in the fall, and bees were flying all around the cat. She was after a warm parking place. I had 14 hives of bees at the time.—S. D. Anderson, Tacoma, Wash,

Just News

On Saturday, April 28, at 7 p. m., the **Middlesex County Beekeepers' Association** will congregate at 19 Everett St., Concord, Mass. Business at this meeting will include election of officers and renewal of dues for the year. Those unable to attend will please mail $2 family membership to Mr. Chester A. Robinson, Treas., 105 Horace Road, Belmont, Mass. Pot luck supper will be casserole dishes with bread, rolls and comb honey, pies, apples, cheese, pickles, and coffee. Movies are also on the program.—A. M. Southwick, President.

The Bronx County Beekeepers' Association will hold its regular monthly meeting on Sunday the 8th of April, 2:30 p. m., at the home and apiary of Mr. L. Jones, 1727 Undercliff Ave., Bronx, N. Y. C. Hives of our host will be uncovered, the weather being satisfactory. Topics for discussion will be the introduction of package bees, and related subjects. Refreshments will be served.—Harry Newman, Sec.

R. L. Parker, Professor of Entomology of Kansas State College at Manhattan, also state apiarist, has been granted a three months' leave of absence to carry out a special assignment of investigating injurious insects attacking the Bermuda cedar. He will be Consulting Entomologist with the Bermuda Board of Agriculture, Paget East, Bermuda.

An illustrated article "Transferring of Bees," by J. Thomlinson, Apiary Inspector, appeared in January, 1945, issue of the Journal of Agriculture, Victoria, Australia. The method used is very similar to what is used in this country.

Postwar Jobs in Beekeeping and Physical Therapy—Students, teachers, parents, vocational counselors and others interested in postwar jobs will find helpful information on opportunities in **Beekeeping** and **Physical Therapy** in two new occupational abstracts just published by Occupational Index, Inc., New York University, New York 3, N. Y. at 25c each.

The Allegheny County Beekeepers' Association of Pennsylvania met February 26 in Pittsburg and elected officers:

President, U. F. Allis, 326 Meridan St., Pittsburgh; Vice President, Guy P. Daniels of McDonald, second Vice-Pres, F. Roy Allen of Pittsburgh; Sec.-Treas., M. Virginia Hess, 125 W. Marlin Drive, Pittsburg. The guest speaker was John M. Amos of State College.

The New Rochelle Beekeepers' Association will hold their regular monthly meeting on Sunday, April 22nd at 2:30 p. m., at the home of Mr. Richard Stack, 94 Stuyvesant Avenue, Larchmont, N. Y. The Question Box will be featured at this meeting so bring your problems.—A. M. Barnes, Ass't. Sec.

Of the estimated honey crop in Canada for 1944 of 36,215,800 pounds, approximately 91 per cent was light and 9 per cent dark. (It would be interesting to know percentages for U.S.A.)

The **Federation News Letter,** the official organ of the National Federation of State Beekeepers' Association, issued monthly from the office of Secretary-Treasurer, V. G Milum, Vivarium Building, Champaign, Illinois, made its appearance early this year. This four page printed sheet is attractive, well edited and contains interesting items and information pertaining to our industry. Such a letter is needed especially at this time when our Federation is actually getting under way. Congratulations, Dr. Milum.

The Worcester County (Mass.) Beekeepers' Association, will meet April 21 for supper at 6:30, followed by a lecture on "Bee Flowers" by Miss Anna Marie O'Connor, curator of Botany, in Worcester museum.

"How to Construct a Dry Feeder," a mimeographed sheet, is now available. Address W. E. Dunham, Extension Apiarist, Ohio State University, Columbus, Ohio.

Beekeepers who spend most of their time with the bees and simply pack honey in their spare time are still eligible for a 2-C rating, and as such come under the provisions of the Tydings Amendment, which is intended to keep in rural areas men who are regularly engaged in

(Continued on page 181)

Asked and Answered

Amount of Honey and Pollen in April

Question.—How many pounds of pollen and honey should an average colony of bees have in April?—Geo. Burke, Ills

Answer.—An average colony of bees in your locality should have at least 25 or 30 pounds of honey and the equivalent of two or three combs of pollen during the latter part of April. A colony might be able to get along on a lesser amount of food, especially if conditions should be favorable for nectar and pollen during the spring months. Sometimes, however, a long cool rainy spell may prevent bees from collecting a normal amount of nectar and pollen and consequently a goodly amount in each hive helps to insure conditions that are favorable for brood rearing. As you may know, bees do not fill the cells to the top with pollen. More often the cells are about one half or two thirds filled, then honey may be placed on top of the pollen and capped over. This helps to keep the pollen in good condition for future use. A standard comb when fairly well filled with honey contains between five and six pounds. On this basis you can estimate quite accurately the amount of honey in the brood chamber of your hive.

What To Do With Combs Containing Granulated Honey

Question.—I have several hundred pounds of honey in extracting frames that has granulated. How can I get this reduced to a liquid salable honey? Some of it is two or three years old as I kept only a few colonies of bees and just let the surplus pile up as I had no extractor. I purchased an extractor this past fall but was unable to do anything with this honey. —Dan Myers, Mont.

Answer.—About the only thing you can do with your combs of honey that have granulated solidly is to cut the combs out of the frames into a metal container, then set this container in a boiler or receptacle of some kind containing water. Some pieces of wood should be placed on the bottom of the boiler so that the container of combs does not come in direct contact with the bottom of the boiler. In other words the boiler should circulate around the container of combs. The water should be boiled. In due time the mass of granulated honey will melt and the honey being heavier than wax will rest on the bottom of the container, whereas the wax being lighter than honey will rise to the surface. When the water is allowed to cool, the mass of wax will congeal and it can then be lifted off the top in a solid mass. The remaining honey may then be heated or warmed enough so that it can be strained through a fine cheesecloth into a bucket. The cheesecloth will catch all of the bits of wax and foreign matter.

Salt To Kill Grass Around Hives

Question.—Will salt put on top of the ground around bee hives, to kill vegetation, harm the bees or honey in any way? —Earnest Galloway, Idaho.

Answer.—We have tried salt to kill grass and weeds around hives. It works quite well. It is not detrimental to the bees because they need some salt. Salt should be applied rather early in the spring before the grass starts to grow. You may have to make the second application during the middle of the season to kill the grass and weeds that start after the first application is made. Late last year we tried out a weed killer. We intend to give it a further trial this spring. If it is successful, mention of it will be made in a future issue of Gleanings.

Producing Honey for Table Use

Question.—I have no honey extractor and want some honey for table use from my three hives of bees. How do I proceed?—James H. Rial, Pa.

Answer.—There is a simple method of producing chunk comb honey which does not necessitate the use of a honey extractor. Use shallow extracting supers with frames taking thick top-bars. A sheet of thin super foundation should be placed in each frame, unwired. After the full super of honey is removed from the hive the combs of honey may be cut out of the frames into some sort of a container such as a crock or large bucket. Some of the honey will leak out of the combs. This can be separated and used in liquid form as it is the same as ordinary extracted honey. The honey in the combs can be used as comb honey and placed on a plate for table use. The wedges in the top bars of the thick top bar frames may be removed temporarily and sheets of thin super foundation may be placed in the frames, then clamped in by tacking the wedges in place.

In this way the frames may be used over and over with fresh foundation each time. This is an economical procedure and for the beekeeper with only a few hives of bees who wants honey for table use only this appears to be the most sensible method that we can think of at the moment.

Getting Honey Out of Combs Without An Extractor

Question.—If my supers contain wired frames and I have no honey extractor how can I get the honey from them? Do I cut between the wires with a knife or scrape the foundation wax with a knife or is there some other way?—Ted Broekhuizen, N. J.

Answer.—Cut the combs out of the frames without cutting the wires (if you wish to leave the wires in the frames), then press or squeeze the honey out of the broken combs into a single thickness of fine cheesecloth placed over a container, permitting the honey to be strained by the cheesecloth. In this way the wax and other foreign matter would be retained in the cheesecloth. Another method would be to scrape the combs, removing the wax and honey down to the mid-rib of the comb. This might be a little difficult to do although if you have only a few combs it can be done to advantage. This would save buying new sheets of foundation.

Stingless and Non-swarming Bees

Question.—Are there stingless bees, also non-swarming bees? Can bees and poultry be kept together?—W. L. Long, Ills.

Answer.—Honeybees will sting once in a while if they are unduly molested or handled improperly. It is possible to manipulate hives of bees with the use of a bee smoker, a bee veil, and bee gloves, without receiving stings if the bees are handled during a fine day when they are flying freely. There are no non-swarming bees. However, swarming can be controlled by intelligent apiary management. Poultry and bees go well together, in fact, chickens and other poultry frequently run in the yard occupied by hives of bees.

Upper Entrance Not Necessary in the South

Question.—Notwithstanding the seemingly established wisdom of the upper entrance, two or three beekeepers have, within the last few days, advised me against it, saying that it does not apply to beekeepers in Georgia. As I have been unable to see any such inference in what you have said, will you advise me?—Chas. R. Hartsfield, Ga.

Answer.—We see no reason why an upper entrance, whether it be a middle or top entrance, should be used in the South at any time of the year. This should be made more clear in our journal and possibly in other journals as well. You will understand, of course, that its main purpose is to avoid the loss of colonies during protracted cold spells of winter in the North in the event that the main or bottom entrance becomes clogged with dead bees or ice. Furthermore, these upper entrances have a tendency to help release any excess moisture that may occur in hives during cold weather.

Soybean Flour and Skim Milk—Where Available

Question.—Where can I get soybean flour (expeller processed) also dry skim milk?—John Gilbert, Ohio.

Answer.—For soybean flour write Killion and Sons Apiaries, Paris, Illinois. To secure dry skim milk write American Dry Milk Institute, 221 LaSalle Ave., Chicago, Illinois, and they will tell you where this produced may be obtained locally.

Pollen Supplement and Pollen Substitutes

Question.—What is the difference, if any, between a pollen supplement and a pollen substitute?—A. N. Oynmous, Mo.

Answer.—A pollen supplement consists of some food material fortified with pollen while a pollen substitute is any food used entirely to replace pollen. See page 150.

Moving Bees Long Distance by Truck

Question.—I want to move my bees 500 miles. What time should they be moved? How should they be prepared, whether screened or unscreened?—M. Pickering, Minn.

Answer.—If you could get your bees moved during late April, it should be possible to move them without entrance screens, especially if the weather is cool and cloudy. Some beekeepers in California who practice migratory beekeeping move with entrances open. They load the hives late in the evening after all the field bees are in the hives and have the load of bees at destination the following morning, about daybreak. If they attempted to move the bees during the day some of the bees would probably leave the hives, epecially if the truck would stop as it would have to do for gas. If you attempt to move your bees after settled warm weather comes, you may have to use entrance and top screens inasmuch as you have more than an overnight trip.

Talks to Beekeepers

By M. J. Deyell

Hives Should Face South. Most authorities say hives of bees in northern latitudes should face South. Most of our hives face that direction. We have a few facing East and a few West. Our experience has been that the colonies facing East do not winter so well as those facing West. Those facing South winter best. Why then do we have any hives facing East or West? Simply to add variety to the position of hives in an apiary so that bees may find their own hives more easily. I have decided, however, that in the future all of our hives will face South. One reason for this is that the winter cluster is usually found toward the front of the hive. With hives facing South, when a good flight day comes and the southern sun strikes the South end or front of a hive, the cluster is warmed up readily and bees can find the entrance easily, especially the upper middle entrance.

Upper Middle Entrance or Flight Hole. In spite of all I have said previously about this upper entrance, I failed to have all of the hives equipped with it this past winter, due to an oversight and rush of work. About the middle of February we had a day warm enough for bees to have a partial flight. I visited two yards in which a few of the hives did not have this upper entrance. I did not have a ⅝" auger along so I pushed the upper brood chamber back enough to leave a ¼" opening at one corner, making sure there was no opening at the opposite corner of the hive. This worked quite well. The bees were anxious to get out so used this small opening instead of having to go down through the bottom chamber to use the main entrance.

As stated previously, a small upper entrance, a small ⅝" auger hole (some make it slightly larger) just below the handhold in the upper chamber is practically adjacent to the winter cluster. It is easy for bees to get out and in during a day that is warm enough for flying.

Importance of Populous Colonies. I have notice during the years that the colonies that are very populous late in the fall are the ones that are populous in the spring, provided of course, they have had enough to eat and adequate protection during the winter. It seems that some of us will sometimes take a chance on wintering colonies that are not up to par in strength. This, in my opinion, is a waste of time. If, perchance, subnormal colonies do manage to get through the winter they are a nuisance in the spring, because in order to save such colonies they usually have to be given more bees, preferably young bees from packages. This means labor and expense. Weak colonies at any time of the year are a liability. However they can be saved, provided they do not die before spring arrives. (See page 142.)

How to Handle Weak Colonies if They Are to be Saved. After all I have said about weak colonies I must say there is something rather mysterious that occurs every once in awhile. Some colonies that appear normal in the fall turn out to be weak in the spring. We are likely to blame such a condition on inferior queens. I have come to the conclusion that in some instances at least, weak colonies are the result of bees drifting from one hive to another during the winter months, especially when they take a good cleansing flight. It is important to have hives spaced some distance apart or to have the hives where there are some shrubs or trees, so that there may be less likelihood of drifting.

Last spring we found about 25 weak colonies in all in our apiaries. In some instances they were mere handfuls of bees with small dried-up queens. At first we thought the

This shows position of upper flight hole. Notice how the bees have darkened the wood around the hole.

queens were poor and not worth saving. We found later that the queens were normal and we saved all but one queen. We ran onto a method of saving queens and weak colonies referred to in previous "Talks" but I mention it again because it may be worth hundreds of dollars, especially when packages of bees are not available.

During the Ohio meeting held recently in Columbus, I mentioned it in my talk and asked beekeepers if they had heard of it. Only one beekeeper raised his hand. He said that Dr. Miller had used it years ago. There are not many things in beekeeping that Dr. Miller did not try or discover.

Quite a number of you beekeepers, especially in the North, are bound to find some weak colonies during April when you check through yards for the first time so here is how to save the weak colonies and develop them into strong colonies. At least it worked for us last spring. It might not work every season. Alexander of New York used a similar method about 40 years ago.

The Method in Practice. When a weak colony is found the brood chamber containing the bees and queen with bottom board removed, is set on top of a hive containing a very strong colony, directly over the inner cover with center block removed. A small piece of queen excluder zinc, just large enough to fit over the hole in the inner cover, is tacked on. A similar piece of queen excluder zinc is tacked over the hole on the bottom side of the inner cover. This prevents the two queens from coming in bodily contact with each other. If a queen excluder is used under the inner cover it is necessary to use only one excluder zinc on the hole in the inner cover. Dr. Miller said two queens can be kept in one colony provided one or more supers are placed between the two queens. With our method, two queens are not separated by a super, but by an inner cover which permits the bees from two queens to intermingle but keeps the queens apart.

For maximum success hives should be handled very carefully, preferably during cool weather, to avoid getting bees stirred up.

The only opening (aside from the one in the inner cover) that the small colony on top has is the auger hole in front which faces the same direction as the entrance of the colony below. That is plenty large enough for a few weeks. The small colony should be kept warm. Some heat passes up through the hole in the inner cover from the populous colony below.

In a short time, some of the bees from the colony below will go up through the hole in the inner cover into the hive above. As time goes on more bees from below will join the queen above and in a few weeks one is surprised at the strength of the upper colony. The populous colony below can spare some bees.

As the weather gets warmer it may be necessary, after the colony above has four or five combs of brood and needs more ventilation, to push the hive back on the inner cover, giving a small entrance in front in addition to the auger hole already in the front of the brood chamber. A small piece of $\frac{3}{8}$" material, cut 16" long, for tacking over the opening of the brood chamber behind works very well.

After the colony on top has developed brood in seven or eight combs, the large colony below is moved onto another stand, at least eight or ten feet away, and the top colony is let down on the parent hive. This colony will now be strengthened by field bees, also old bees, that return from the hive that was moved.

It is possible and in some instances desirable to operate the two brood chambers as a two-queen colony, instead of separating the brood chambers after the weak colony has built up to full strength.

It is, of course, advisable whenever possible to procure queenless packages of bees for strengthening weak colonies. The method just described is used in the event that packages are not available, when needed.

Importance of Very Populous Colonies for the Main Flow. Here again we may lose sight of the importance of having all colonies boiling over with bees when the main flow starts. To develop such colonies we must apply intelligent management throughout the season and especially during the spring months. Many carloads (perhaps trainloads) of honey are lost each season because of the failure of beekeepers to have populous colonies at the right time. Frequently, one good strong colony will put up more surplus honey than a half dozen weaklings.

Importance of Pollen Supplements and Substitutes. It seems obvious after reading the many articles covering experiences of those who have fed supplements and substitutes that it is possible to increase the honey crop many fold in the future. In the past there has been a tendency to overlook the value of proteins in the food of honeybees, especially for larval food. We supply the carbohydrates by feeding honey or sugar syrup but that is not enough. Bees must have proteins to maintain a balanced ration. In regions where pollen plants are not plentiful it seems feasible to feed either supplements or substitutes at the proper time to increase brood rearing in order to produce very populous colonies. A pollen supplement consists of some food material fortified with pollen while a pollen substitute is any food used entirely to replace pollen.

On page 126 of this number there is an article on a pollen substitute. For more information on a pollen supplement, send for Bulletin E-531 entitled, "The Use of Pollen Traps and Pollen Supplements." Send to Dr. C. L. Farrar, Madison, Wisconsin, care of Bee Culture Laboratory.

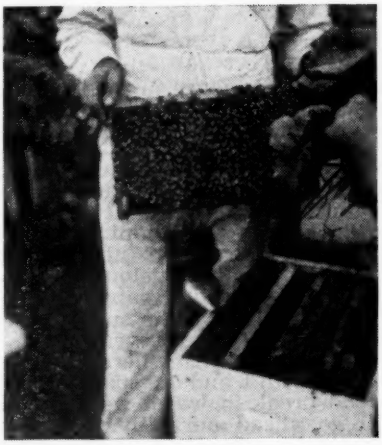
I may be a back number on this business of feeding supplements and substitutes for pollen. Early last spring I tried to get some material for feeding a pollen substitute but failed. Last summer I tried to trap some pollen in order to feed a pollen supplement this spring. I did not secure much pollen in the trap and found later that I had not placed it on the hive correctly. I hope to know more about these matters in the near future than I do at present. Generally speaking, we have an abundance of pollen in the vicinity of Medina but nevertheless I wish to do some experimental work along these lines.

Using a hive cover as a seat while examining a colony.

A Word to Beginners on How to Examine Colonies—Hives should be opened only during the warmest part of the day while bees are flying well. One needs a bee smoker, a bee veil, and a hive tool. The smoker should be well lighted before putting on the veil—especially if it is a cotton veil which is easily burned by the flames from the lighted smoker.

Never stand directly in front of a hive when bees are flying. If the hive has an outer cover remove it, then insert the hive tool under one corner of the inner cover, and blow some smoke through the small opening. Wait a few seconds, then apply some more smoke over the top of the frames, but not too much.

To remove the first frame, shove the hive tool down between the end bars of the nearest frame and the hive wall and pry the frames over towards the opposite side. Next, separate the nearest frame from the adjacent one and remove it carefully. Do not make any quick moves. After examining the comb, stand it on end at the front corner of the hive so as not to obstruct the hive entrance. This is important because, if the queen should be on this comb she could easily crawl



A handy method of holding the smoker between one's knees while examining a comb.

into the hive instead of being lost in the grass as might happen if the comb should be placed back of the hive.

The next comb should be removed and examined, then placed back in the hive at the nearest side. The remaining combs should be examined in like manner. Before placing the last comb removed, back in the hive, the frames in the hive should be pushed over, all at once, to the further side to make room for the first frame removed. This helps to prevent killing bees.

Conditions Inside the Hive. In the latitude of Northern Ohio a normal colony during the middle of April should have brood in from four to six combs. Further south colonies have reached full strength and in some states some surplus honey has been stored. The combs near the sides of the brood chamber should contain considerable sealed honey. Combs in the center of the brood chamber should contain eggs and brood in all stages, unsealed and sealed, as well as honey in the upper portions.

Cells adjacent to the brood will contain pollen of many colors. Balls of pollen may be seen on the legs of worker bees. This pollen is placed in the cells of combs to be used later as larval food. Fresh nectar may be seen glistening in the cells of the combs.

There are three kinds of cells—worker, drone, and queen cells. The worker cells are about 1/5 of an inch in diameter. The drone cells about ¼ inch in diameter and are found usually in the lower portion of the combs and are easily detected because they project somewhat beyond the depth of worker cells and look like bullets projecting from cartridges.

Queen cells appear before a swarm issues and are usually built along the lower edges of the combs. They are easily recognized, because instead of being horizontal as are worker and drone cells, they are nearly verticle and resemble peanut shells in shape. Supersedure queen cells are more likely to appear near the middle of the combs. More will be said about queen cells and swarming in the next Talk.

How to Avoid Getting Bees Stirred Up

During the past few years we have received a number of letters from beekeepers in towns and cities telling about their troubles with neighbors. As a matter of fact, some towns and cities have tried to ban bees from within their corporations and in a few instances have succeeded.

This is unfortunate, because the bees are needed for pollinating blossoms to increase food production so much needed at present.

Comparatively few people realize the value of bees to agriculture. We must have honeybees to produce maximum crops of fruit and vegetables, also to pollinate legumes so necessary for soil fertility. If you have not read bulletin E-584, "The Dependence of Agriculture on the Beekeeping Industry," prepared by the Division of Bee Culture, Beltsville, Maryland, you should secure a copy and read it thoroughly.

Use Common Horse Sense in Handling Bees

As I have watched some beekeepers, or should I say keepers of bees, manipulate hives I was not surprised at their being stung and the wonder was that every person and animal nearby were not stung. Colonies of bees have some rights that should be respected: (1), Use smoke judiciously and open hives only when bees are flying well. (2), If there are signs of robbing (bees from other hives trying to gain entrance to the hive being manipulated) close up the hive at once. (3), Never put on supers of wet combs during the day, unless a good flow is on, but put them on late in the evening on top of the inner cover with center block removed.

Editorials

The DDT which is being released for civilian or commercial use we hope is in such form or combination that it will not be destructive to the beekeeping industry. (See footnote page 131.) We are loath to believe that the Government would allow such use.

Experimental Work on Wintering Bees

Mr. E. J. Anderson of the Agricultural Experiment Station State College, Pa., did some work recently on wintering bees. He investigated the effect of an upper 5/8" auxilliary entrance on internal hive temperature and humidity, also the effect of winter packing on internal hive temperatures. (See "Science for the Farmer" put out by Pa. Agri. College, State College, Pa.

It was found that the upper entrance provides a convenient flight hole, especially if the lower entrance becomes clogged with dead bees or ice. "It helped somewhat in the ripening of nectar gathered late in the season. These advantages were attained without appreciable loss of heat."

From work done on packing or insulation for hives of bees it would seem that packing is desirable in cold regions where bees have very few winter flights. Packed colonies consume less food and are more populous when warm weather comes.

Colonies with wind protection winter better than colonies in the open.

Many Weak Colonies This Spring

Reports from beekeepers in the North where continuous cold weather kept bees in hives for over three months, indicate some winter loss and an abnormal percentage of weak colonies.

Unless queenless packages from the South can be added to these weak colonies early, a large number of them will pass out. Where queenless packages are not available, weak colonies can be saved by placing them over populous colonies having an inner cover with block removed also a queen excluder between each weak and strong colony. For further details see Talks to Beekeepers, page 148. This method is based on experience in the spring of 1944 in our apiaries. A similar method was used about 50 years ago.

Pollen Substitute or Supplement for Packages

It seems obvious that packages of bees put into hives containing frames with full sheets of foundation would develop more rapidly if fed a pollen supplement or substitute along with sugar syrup, than if fed only sugar syrup.

In some regions where pollen is very plentiful and the packages get a good break in warm weather they will go ahead normally. If, however, a long spell of cool weather prevails after bees are installed the progress of packages is retarded.

It seems probable that, in the future, it will be common practice to supply pollen substitutes or supplements to packages at the time they are put into hives, to help insure normal development of populous colonies, ready for the major honey flow.

When is a Bee Space Not a Bee Space? or, What is a Bee Space?

The man who had a big hole in the cellar door for the cat and a small one for the kittens thought he had complications, but his problem was much simpler than that in the bee hive where there is not only the worker but the queen and the drone.

A minimum bee space is taken to be 3/16 inch which in decimals is .1875 inch. But the proper space for a queen excluder is .162 inch or 25 thousandths of an inch less (187 - 162 equals 25). Virgin queens are usually thinner than laying queens. An error of only a few thousandths will permit a virgin queen to pass through an excluder. A space 187½ thousandths or 3/16 inch is a worker space and also a virgin queen space, in that both can get through.

What is a drone space? If it is ¼ inch, or 250 thousandths of an inch, then a drone space is 88 thousandths of an inch more than the minimum worker bee space of the queen excluder (250 minus 162 equals 88).

When we say bee space are we talking about a worker bee, a virgin queen, a laying queen, or a drone?

Hiving Package Bees During the years numerous methods of putting package bees into hives have been used. The important thing is to get the job done with as little labor as possible and have the packages develop quickly into normal colonies.

The method used in Saskatchewan described on pages 121 to 123 of this issue appears to have merit. In some instances, when bees arrive during a snow storm in the North it is feasible to install bees in a dark cellar and leave them there well supplied with food, until the weather is suitable for placing the hives outside on permanent stands.

The time may come, we hope, when we will have a standard bee-shipping cage, a standard method of fastening the queen in the shipping cage enroute, also of feeding and installing the bees in the hives. This would help to simplify the package bee problem.

Bees for Tomorrow This is the title of a very interesting and informative article by Alfred Sinks, in the magazine, Science Illustrated, for November, 1944. Mr. Sinks has gone deeply into the work of Bee Culture Laboratory work in the Bureau of Entomology, at Baton Rouge, Louisiana, and at Madison, Wisconsin. He has specialized in the work of the improvement in strains of bees through means of artificial matings of queen bees, worked out by Lloyd R. Watson in 1926, and improved by W. J. Nolan, W. C. Roberts, and Dr. Otto Mackensen, under their Chief, James I. Hambleton.

One difficulty experienced in improving honeybees is in the control of the male parentage, the drone. As all matings of queens and drones have heretofore taken place in the air, the natural way, research workers have been experimenting with artificial matings of queens, even going so far as to inseminate queens two or more times by the apparatus which the Government now uses.

Most of the material given in the November Science Illustrated, is apparently taken directly from the research workers themselves. The only question in our minds is whether Mr. Sinks has overvaluated the importance of the work so far accomplished. He gives the impression that artificial multiple mating of queens is now an accomplished fact. This was referred to Mr. Hambleton who replies under date of Jan. 27:

The results which Dr. Mackensen of the Baton Rouge laboratory and W. C. Roberts at our Madison laboratory have obtained with artificially mated queens multiply inseminated* have been so outstanding as to remove the operation from the experimental class. These artificially inseminated queens compare favorably, side by side, with the best of the naturally mated queens. Artificially inseminated queens in the resistance work during the past two years have stood up exceptionally well. We feel, accordingly, that this practice could be put to commercial use.

While it is possible to produce fully inseminated queens, queens good enough to head producing colonies, the mechanics of adopting the technique to commercial practice have still to be worked out. At present, I doubt that it would pay any queen breeder to produce such queens for commercial purposes. He might very well, however, breed enough queens to maintain his own special stock. Instrumentally inseminated queens could not compete in the open market at current prices for naturally mated queens.

The first commercial enterprise no doubt will be confined to the propagation of strickly breeding stock where a queen breeder will want to maintain a distinctive type that he can be sure of. All research workers who are interested in any phase of bee breeding will have little choice but to adapt the technique of artificial insemination if they wish to make real progress.

Honey Price Parity In June, 1942, the Bureau of Agricultural Economics of the U. S. Department of Agriculture published the parity price of honey at 10.4c per pound. This was established on the base period of 1919 to 1929, according to the report.

From this figure the ceiling was established at 115% of parity, or 12c, under the Emergency Price Control Act.

Now that the floor prices are under discussion it is interesting to note the basis on which support prices have been established on other farm commodities. Producers of corn, wheat, tobacco, rice, and peanuts are guaranteed a price equal to 90% of parity and the producers of cotton a return equal to 92½% of parity. Other farm crops that have been in urgent demand during the war are covered by guarantees of at least 90%. The stabilization extension act provides that where prices of certain commodities were above the present parity at any time during the first nine months of 1942,

*Viz., inseminated more than once.—Ed.

the highest price reached during that period must be maintained. Some products are being supported at prices as much as 30% above parity.

Honey is not one of those agricultural commodities covered by the Steagall Amendment where all out production is requested by the government, but it is interesting to note how these commodities that are under this regulation have been handled in the matter of price support.

Large vs. Small Brood Chambers

During the years, since the days of "contraction" (a method whereby brood chambers were reduced down at the beginning of the main honey flow to four or five combs by using dummies to take the place of combs removed in order to force bees to put surplus honey in supers), there has been a gradual swing to larger brood chambers. At present, many beekeepers are using two deep supers or hive bodies for each brood chamber throughout the season and a few are wintering colonies in three-story hives.

Strictly speaking, a brood chamber of a beehive is a compartment where brood is reared. It seems apparent from past records of the egg-laying ability of queens that a standard 10-frame hive with good combs consisting mainly of worker cells would accommodate the most prolific queen. Occasionally, we receive reports (not authenticated) of queens that lay three or four thousand eggs per day. As a matter of fact, according to work done by W. J. Nolan of the Bee Culture Laboratory, Beltsville, Maryland, about 1921, the most prolific queen tested out did not average more than 1583 eggs per day for 21 days. This would amount to approximately seven full combs of brood and eggs, which if spread out, might be found in from 12 to 16 combs. We have seen queens that have had brood in from 18 to 20 combs, but there is a difference between combs of brood and brood in combs. The estimate of approximately seven full combs of brood and eggs, just mentioned, is based on each standard comb containing approximately 5000 cells suitable for egg-laying.

However, an abundance of honey and pollen are needed for brood rearing, which fact obviously accounts for the necessity of a food chamber. In a human domicile there is usually a pantry near or adjacent to the living room where the family is being reared. The same should be true in a beehive.

During the spring months when the queen has access to the brood chamber and the food chamber, a part of the food chamber becomes a brood chamber, because the queen occupies combs for egg laying that previously were filled with honey but are slowly emptied, thus becoming available for the queen. The queen then has access to 20 combs instead of 10, the majority of which are available for brood rearing. Some beekeepers in regions where the spring honey flow is heavy, give each queen the run of three or four supers during this early flow then, at the beginning of the major honey flow, the queen is put down into the bottom brood chamber, beneath a queen excluder.

To get back to the food requirements of a colony, beekeeping authorities are now saying that each populous colony wintered outside should have the equivalent of five or six full combs of pollen and not less than 50 or 60 pounds of well ripened honey. The amount of honey recommended would be equivalent to at least 10 well filled standard combs. Ten combs of honey plus six combs of pollen would leave only four combs empty to furnish a clustering space at the cessation of brood rearing late in the fall.

But what about brood rearing space necessary earlier in the fall, to produce a very populous colony for winter? Queens, as a rule, do not lay so heavily in the fall as they do in the spring prior to the major honey flow. Assuming that five or six full combs would be required for brood rearing during the fall months, it will then be seen that a two-story hive is none too large to furnish sufficient comb space for fall brood rearing, pollen, and an abundance of honey for winter and early spring stores.

When we learn of some commercial beekeepers who are now wintering in three standard hive bodies, there may be a good reason for their doing so.

And let it be remembered, that since the swing from small to the large brood chambers, the crops of honey secured have, on the average, increased materially. See page 142.

From North, East, West and South

N. CALIFORNIA, Mar. 3

Weather: We have in California every variety of weather found in any other place in the U. S. January was a dry month. It was not unusual to hear it referred to as the driest January on record. Be that as it may the record was broken the last week by heavy rains that continued through the first week of February. This broke the January drought and left the seasonal rainfall above normal. It also left a heavy growth of grass, weeds, and a boost to every kind of honey plant.

In the Bay area on account of the sub-tropical condition the eucalyptus is blooming in spots which will mean a slower flow and one that will last longer than some seasons. Trees commenced blooming in early fall and continued through the rainy season when bees could not work. Now that the weather is more settled the flow will continue but will be slower than usual. We expect a good crop but how it will be affected by the spotted condition of the blooming we will have to wait for results.

Today the greater part of northern California is above normal in rainfall.

Condition of Bees: The build-up of bees is most encouraging. The weather through the blooming season of almond was fair and blooming was heavy. Two weeks of warm weather will produce heavy swarming. However, we are used to that and will not be surprised. After the almonds some bees will be moved to the cherries, after that into alfalfa, lima beans, and star thistle. In the area where bees were poisoned by the careless drifting of insecticide poisoning beekeepers are finding colonies slow in building up and may need feeding. Such bees do not promise a good crop.

Marketing: There is little honey to be found in the hands of producers. Retailers that have any left are trying to make it last until the new crop comes in.

Miscellaneous: What is the future of beekeeping? Our beekeepers are united and a cooperative spirit exists among them. At our last meeting held in January every corner of the state was well represented by live beekeepers who were hopeful of the future. They told us there would be surprises in 1945 and more when the war was over and our boys returned. There will be a new beekeeping and our boys will join our leaders and show them how they turned defeat into success.

When our energetic leader, Dr. J. E. Eckert was asked to say a word, he replied, "The need today is to be successful. A beekeeper should study bee behavior, become familiar with the kinds of nectar and pollen plants and their blooming periods, and know how to recognize and control bee diseases."—Cary W. Hartman, Oakland, Calif.

SOUTHERN CALIFORNIA, Mar. 2

Weather: "Watchman, what of the night," might have been asked of the weather man in Southern California almost any time during the past two months. We venture to say that his answer would have been evasive rather than positive as to the probability of our getting rain of any consequence.

January and February were away below average in rainfall but the amount for the season to date is sufficient to give at least part of a crop if we are lucky enough to get some good rains in March and April.

Miscellaneous: Many plants, including the black sage, show a good start and with normal moisture should yield some honey. Black sage does not yield every season so this should be the year for sage honey.

To see ads offering three, five, or a dozen colonies of bees for sale, with few or no buyers and then to hear of hundreds of colonies selling for around ten dollars per colony, makes us wonder why some of these young fellows who want to get in the business do not pick up these odd lots of bees.

In many apiaries bees have been slow in building up. An average of

three and four frames of brood with an occasional colony with five or six frames is about tops. Where there is eucalyptus or winter bloom, bees get an early start.

Some beekeepers complain of the bees being short of pollen. The cool winter has held back many of the early blooming annuals from which the bees usually get pollen and a little nectar. A goodly supply of honey is a great asset but to build up in spring the bees must have plenty of pollen.

Alfileria, an old dependable, usually blooming in January and early February, is only now showing bloom on our ranges. In fact, one beekeeper to the south of us reports little or none on his ranges that formerly could be depended on for early build up of bees in the spring. Some of our department people might look into this. Why are some ranges devoid of this plant where at one time it was plentiful? Has some pest been attacking the plant?

Most beekeepers have given their colonies the once over and report very little disease.— L. L. Andrews, Corona, Calif.

TEXAS, Mar. 1

The weather for Texas from November to March was mild and pleasant, with more than normal rainfall. At this place there was only one morning that showed a degree of temperature as low as 30 degrees above.

Plants responded to the warmth by continuing to bloom and some composites that generally are killed by cold in November or December are still alive and putting up new stems from the old stalks. All this shows how near we are to the line between frost controlled plants.

Prospects: The last week in February a count was made of plants in bloom on which honeybees were working. Thirty-two plants in a territory of less than five square miles supplied pollen or nectar abundantly. The plants most commonly visited and those that supplied the majority of the pollen seen in 42 hives examined, are ones seldom mentioned in lists of pollen plants, although records here indicate they are our best early pollen producers. These are **Urtica chamaedryoides Pursh.** the **Low spring nettle, Bowlesia incana** R & P, false geranium, and **Lesquerella recurvata (Engelm) S. Wats. Bladdie pod.** The dwarf wild plum **Prunus Texana A. Dietr** is also most helpful as it seems to be the first plant to come into bloom and its blooming date coincides with the date of the beginning of brood rearing.

Reports from beekeepers and examination of hives here give an average of six combs with sealed brood. The plants are ready, the bees are strong, the future is bright, but March is here and anything may happen.

Miscellaneous: We take this space to pay the respects of Texas beekeepers to T. W. Burleson. In his demise we have lost an honored leader and our best advisor and friend.

The publicity given to penicillin and the fact that beeswax is used in the solutions in which this new drug is administered has brought on a wave of doctors inquiring into apiculture and some have purchased hives of bees with an idea of studying an insect so much connected with one of the recent discoveries in medicine.

Beekeepers are much alarmed about the proposed use of DDT on the Texas Coastal Plains to combat insect carriers of disease. It is to be remembered that most of the areas suggested for field trial are in localities where beekeeping is restricted to a very few colonies and if the experiment is successful those few colonies are given in a good cause. It is doubtful that in the regular or chemical eradication of insects by DDT honeybees would be much affected. (See page 131.)

The chain stores play a great part in making honey available the year around. In the large cities of Texas one can find in such stores honey from almost any place it is produced. It is put up in all the standard containers and in some one and two ounce bottles supposed to come from the tropics. The labels on the bottles are interesting as the source is given, by English names of plants, not found in the tropics. The honeys are supposed to have medical value. These little jars sell at one dollar each and go quickly from the counters.—**H. B. Parks, San Antonio, Texas.**

NEW YORK, Mar. 3

Weather: February has been, and March continues, much milder than either December or January, two months which will be remembered by most inhabitants of New York State for the many severe storms which drifted snow to unusual depths and resulted in roads being closed for weeks at a time; in fact, some side roads are not yet open.

Bees had no flights from mid-November until about February 15, and no real good cleansing flight until last week. Snow accumulated all winter with no spells of thawing and consequently colonies have been buried a great deal of the time. Some colonies have been badly afflicted with dysentery due to their long confinement. In one yard where feces were smeared around the entrances of several colonies, bees dropping into the snow near the entrances showed no evidence of Nosema when examined carefully, even though they were badly distended with dysentery. No other yards were checked in this way, but in this particular yard Nosema was apparently not associated with dysentery. Many yards show no dysentery and possibly winter loss will not be excessive. Some beekeepers report loss of colonies due to entrances becoming clogged with snow and ice.

The ground has remained unfrozen throughout the winter and the recent gradual thawing of the heavy snow cover is replenishing ground water satisfactorily. Clover looks good although damage from freezing and thawing may occur. In this area we are hoping the large tonnage of lime and superphosphate which farmers have used the past few years will improve nectar secretion and make possible a good crop of clover honey. No such improvement in nectar secretion has so far been noted.

Honey is again moving rapidly, with good demand due at least in part, to the increasing scarcity of sugar. The slowing of sales earlier should serve as a warning to all concerned who think honey marketing troubles are over. Not until the industry comes to realize the necessity for supplying uniformly high quality honey in consumer packages and selling all other honey through present and future commercial outlets can table use of honey be great enough to justify anyone connected with the industry saying "not enough honey is being produced." This is an unfair and misleading statement in normal times. Not until consumer demand has been built up to take each year's crop of honey at a price to insure the commercial beekeeper a fair return for his labor and investment should anyone ever make such a statement. To be sure, during war time, every last pound possible should be produced.—William L. Coggshall, Ludlowville, N. Y.

ALABAMA, March 5

Weather: For this part of the country we have had a long winter with much rain, but at this date we are having spring weather. The weather is much like it usually is the third week in March. Warm rains have brought out many blooms which have their influence on colony strength.

Colony Conditions: Most colonies came through the winter in good condition. We had a very dry fall which was not conducive to fall brood rearing; therefore some losses were expected. Some apiaries seem to have been more affected than others, and there have been some failures of queens which no doubt are due to the same cause.

However, at this time some colonies have as many as six frames well filled with brood. This is far ahead of the usual condition, and it is quite obvious that package and queen bee men can fill orders early. Much pollen is coming in, but some apiaries are in need of nectar producing blooms.

Honey Flora: At this time our principal flora are huckleberry, spring titi, pine, and oak. Huckleberry belongs to the leatherwood family, and I understand should be poisonous to young brood; but it does not seem to have that effect here. Perhaps it is because the nectar is mixed with that of other bloom.

Spring titi often freezes and is not always of great benefit for brood rearing. This year it is yielding

well. Pine and oak are our pollen producing plants. The oak is just starting, while the pine has been in bloom several days.

I have read several articles about spring shortages of pollen, and about pollen substitutes, in other sections. This section has many early pollen producing plants but often not enough nectar plants. Our very first is alder which begins blooming about January 15 and starts brood rearing. This is followed by water maple about February 15. Pine comes next the latter part of February, and March brings on a multitude of lesser blooms.—H. G. Miller, Vinegar Bend, Alabama.

OHIO, March 6

Weather: Cold weather came to Ohio November 15, 1944, and continued cold until February 15, 1945. Most every beekeeper with whom I talked was much worried about his bees being housed up for such an extended period of time without a flight. Ninety days or three months is quite a long time! With very little precipitation last fall and cold weather coming so soon and staying so long the water table was materially lowered. The state was threatened with a water famine. Now as this item is being written we have passed the water scarcity and have more of the Jupiter Pluvious than our streams can manage. Continuous rains have caused floods over the entire state.

Bees and Clovers: Losses to date by beekeepers have been reported above 5 per cent while others report very light losses. This is one year that you will receive greater profits from the honey left on the hives than from any other source. Plenty of bees and plenty of honey is the best packing yet devised for good wintering. However, the heaviest losses in our bee yards usually come in April.

Now a word about clovers. Due to intensive crop farming for the past few years clover acreage has been diminished to a minimum and dry weather was mighty hard on it this last fall. This has been a very great disappointment and indirect loss to beekeepers in this state. It will be equally as great a loss and disappointment to farmers. Unfortunately very few farmers have realized what the lack of legume crops is doing to their land. There will also be a shortage of clover seed now and in the years ahead. Some farm lands are so run down and poor right now that the farmer can scarcely raise "A Disturbance" on them to say nothing of a fair crop. Nitrates in fertilizers have gone to war. Legumes will deposit approximately 90 pounds of nitrate per acre in the soil and also produce a fair crop of honey if not cut for hay. Let's all talk to our farmer friends about more and better sweet clover fields. You will be doing yourself and the farmer a good turn.

Miscellaneous: We predict an early spring. Limited space in Gleanings due to paper shortage will not permit any further remarks.—W. A. Coulter, Columbus 3, Ohio.

MINNESOTA, March 9

Weather: Generally snow has covered the ground most of the winter. There was no very warm spell for bee flights, but on the whole it was good winter weather for the bees.

Condition of Bees: This long confinement may result in some dysentery. Although it is too early this date to form an opinion, properly managed colonies should be in good shape.

Honey: Most honey stocks are low or entirely gone. Although sales demand has slacked off, it is strong enough to move what is left of the '44 crop.

Miscellaneous: While not complaining, if it is a wartime necessity, the Government policy of spring plowing under of sweet clover, and its emphasis on flax and soybean crops, all work to the detriment of the men whose pollenizing bees the same Government claims are worth 20 times as much to agriculture as the beekeeper gets for his honey. With decreasing sweet clover acreage, and other nectar sources often unreliable, a large part of Minnesota looks forward rather gloomily for the coming season's crop. Under such conditions one wonders if beekeepers are entitled to some Government consideration, also.

Colonies start brood rearing in January here, although the first pollen may not come in before April 1, approximately three months later. On January 29, this year, Professor Haydak, University Farm, placed an outdoors wintered colony in a greenhouse. Sealed brood was present on two frames then. This shows that Minnesota colonies need ample honey and pollen for **early** brood rearing, before much flying or any flowers are possible. Does this point directly to the advisable use of pollen supplements, or substitutes, for many colonies?

A short course in beekeeping will be offered at the University Farm, May 10 - 12. Several outstanding speakers are invited. Also, a beekeeping correspondence course of sixteen lessons is offered—write Gen. Extension Div., U. of M., Minneapolis 14. Dr. M. H. Haydak is now in full charge of the bee work at the Division of Entomology. (By the way, "Directions for Preparing and Using Pollen Substitutes" is available for the asking.)

Some metal bee supplies are again available, and both tin and glass containers. It seems advisable to order containers early.

Some beekeepers have not taken proper care of their honey on the grocer's shelves. Consumers want clear liquid honey and when it granulates, the beekeeper should have sufficient interest in the sale of his product to liquefy the honey that bears his label, for the store. The grocer will appreciate that you consider a responsibility for your honey all the way through until it is ultimately consumed.—Bruce Morehouse, Montevideo, Minn.

UTAH, March 8

Weather: We have had many flight days this winter—only two or three heavy snow storms to date. We hope for more moisture. An early dandelion flow will be welcomed as many colonies are light in brood-rearing stores.

Arsenic Poison: Utah must appear to most beekeepers on the outside as an extremely hopeless place for bees in spite of it's suggestive State Emblem—the bee hive. Nothing but songs of woe have appeared in the journals and papers that have given space to Utah bee news. Why? Because bee losses have been increasing here at about the same rate that human losses have been increasing in Europe and the Pacific through the past years. I believe I can throw out a note of hope at this point, tho, no matter how dark the immediate future looks. Here is why I think our problem is near its solution:

We bee owners have at last decided to quit playing detective in an attempt to find the source of arsenic that is causing our losses and have obtained the help of experts trained in scientific methods. The amateur efforts that we formerly engaged in only lead to a dozen different conclusions and many dozen different solutions. No two groups of beekeepers could agree on the cause of their losses nor on an adequate solution. Accusations were thrown about profusely, but the bees just kept on dying.

We are now saying less about the various baits and sprays and dusts and are concentrating our efforts on more adequate funds for research, better coordination among the various government agencies concerned, and on supplying plenty of colonies where they are needed for experimentation. Instead of cussing those in charge of the research for being slow in their solution of the problem, we are helping them gather valuable bee and plant data. And the orchard men are helping, too. They have felt the loss of bee pollinators and they realize that our interests are as closely linked with theirs as are the interests of allied nations in a world crisis. They have joined with us in asking for additional federal help in running down our trouble.

This new cooperative approach to our arsenic problem is beginning to show rewards. At our annual bee convention this year Dr. A. P. Sturtevant who has been analyzing the samples and treating the results statistically at Laramie, Wyoming, gave us a summary of the 1943-'44 findings. As he will undoubtedly publish the results of his findings in one of the bee journals soon, I'll not attempt to say any more than this. The heaviest average amounts of arsenic were found in the blossoms, pollen traps, and dead bees of our two smelter counties—Salt Lake and Tooele. Lighter, but non-the-

less deadly, amounts were found in the fruit raising counties to the north and south of Salt Lake.

Those interested in the poisoning of bees should watch for Dr. Sturtevant's interpretation of the Utah data when it is published.—Wm. L. Moran, Salt Lake City.

ONTARIO, March 6

Weather: A long winter with never a thaw is at last beginning to show signs of easing up a bit, and at this date bits of bare ground are just beginning to show up in the plowed fields. Snow came early in December, and real winter set in some time before Christmas, and one snowfall after another with no thawing, piled up the "beautiful" to the greatest depth we have ever seen for at least the last 50 years. No frost in the ground and that factor will likely be a great help in preventing floods when snow melts, as the dry frostless ground will take up the bulk of the water resulting from the melted snow. Of course, all clovers, winter wheat, etc., are as green under the blanket of snow as they were last November. With no frost in the ground, freezing and thawing never affects clover so adversely in late March and early April, as it does when frost is deep, so we are feeling quite optimistic as to good wintering of the clover.

How are the bees wintering? We have been around to less than one quarter of our apiaries and entrance conditions lead us to believe that the bees are in good shape. No signs whatever of dysentery even if bees have had no flight whatever since some time in November. We have about 150 colonies wintering in four-colony cases, and they have not been visited yet, and we were wondering if they might not be too warm and get uneasy and use up their stores too fast. Please understand that even at this late date, snow in most yards is two to three feet deep and many colonies are completely covered. But even when covered over, we find that large spaces are cleared around the entrances so that they are in no danger of smothering. No rain all winter and that has prevented ice forming at entrances as it does during some mild winters with much alternate thawing and freezing.

Honey appears to be moving well according to what officials of the Ontario Honey Producers' Co-Operative tell me, selling freely at ceiling prices, which are in my opinion too high, when one thinks of past experiences. When honey sells in pound jars for well over 25 cents, just as soon as sugar restrictions are removed, there is bound to be a reduction in the amount of honey consumed when prices are so out of line with jams and other sweets. Yes, I know that many will disagree with me and say "make hay while the sun shines," but we prefer to take the longer view and consider the future. The beekeeping game and all its connections including prices, etc., seems to go in cycles and in our short lifetime we can recall at least two major sweeps of this cycle. We have sold buckwheat honey in barrels at 4 cents and the same product in barrels at 20 cents. White honey was sold at a maximum price wholesale, for 22 cents and as low as 7 cents.

Miscellaneous: Many years ago the writer shared room and bed with the late W. L. Coggshall, at Albany, N. Y. If correct, the present well known "W. L." is a grandson of "Lamar" as he was popularly known. At that time, hundreds were going into beekeeping, with high prices as an incentive to making lots of money. Well do we remember how my good friend made a prophecy as to just what would happen, and he certainly was right.

A few weeks ago a meeting was called to revive the York County District Beekeepers Association that has been dormant for a number of years although formerly very active with a good membership. Circulars were sent out announcing the meeting to be held on the premises of the Ontario Honey Producers' Co-Operative. To the surprise of everybody, nearly 300 came to the meeting, and enthusiasm was rampant, quite a large membership signing up with little solicitation necessary. As we noticed all this, involuntarily our mind went back to the night spent in Albany and the prophecy of the late Mr. Coggshall was recalled. Will history once more repeat itself?—J. L. Byer, Markham, Ontario.

Spinster Jane Says

"Spring, why are you tarrying?" That is the question all of us in this district are asking. Winter shows no sign of loosening its grip. There hasn't been a real honest-to-goodness thaw yet, and everything is still blanketed in a thick layer of snow. We had a little rain, but it immediatey turned cold, and a thick crust makes it possible for children to run on top of the still deep snow.

Of course, we can stand the delay in warmer weather coming, but how about the poor little worker bees, shut in since last November? It is surely hard on them.

Boy was so very anxious to know how they were coming through that he very carefully drew away the protecting snow from the entrances and just as carefully brushed out the dead bee accumulation. It isn't possible for the bees to carry these outside, and they might possibly smother, were the entrance to be completely packed, and this was his excuse. I think curiosity was partly the motive. When a beekeeper has one bad year, then stakes everything on outside wintering in a country cold as ours has been this winter, then he can surely be excused for wanting first hand information as to how his experiment is working out. And what did he find? EVERY HIVE ALIVE except one late swarm, and he wasn't even sure it was dead! Now, if they fail to come through, we can blame it on this continuous cold. Boy's instructions to us were to keep the entrances covered with snow until the snow had disappeared from all about the bee-yard and its immediate vicinity. We know, with one day of hot sunshine the bees will think all is well, and in their great urge for a cleansing flight, they will rush outside, drop on the cold snow, and, becoming chilled, fail to rise again.

In spite of still-below-zero nights, the sun is warm, and we feel we have some chore on our hands to keep the bees in and alive.

We do not think we are too optimistic, but we do look for a good bee year. We rarely have two bad years in succession, and our hopes are high.

I always enjoy reading Gleanings from cover to cover. Even the "ads" intrigue me, and when I see big sales, I do wish I were one of those moneyed folk, just long enough, remember, to add to our small number.

And speaking of a honey market; it is a great thing to earn the name of selling only the best, then maintaining that name with all honesty. Last year we had no first grade honey, but we advertised it for what it was, warned the buyers that it might not keep, and were very candid about it. But did it discourage them? I'll say it did not. They tasted it, said it wouldn't last long enough to spoil, and wanted more than we had to spare. It pays to be honest, and that is the only way to keep one's customers.

Here's wishing that 1945 will see a bumper crop of grade A honey.

"HONEY AND YOUR HEALTH"

Beck - Smedley

Those who found great value in the book by Dr. Bodog F. Beck, "Honey and Health", will welcome the new edition revised by Doree Smedley, well known dietetic expert. With a new name, "Honey and Your Health", a new cover, and with much of Part 1 rewritten, the book is a valuable addition to the library of any honey producer or person interested in the health giving properties of honey. Just two instances, appearing in the first as well as the second edition, show the value of the book. Even Dr. Beck himself, probably, did not begin to realize how valuable these experiments would become, for he could not know of the hundreds of thousands of victims of World War 11 suffering from impoverished blood.

"An interesting experiment was undertaken some years ago in an Austrian orphanage by Dr. A. Rolleder, who wished to learn whether the copper, iron and manganese (which have blood-building functions) that honey contains in small amounts would have any appreciable effect upon the hemoglobin (blood count). He selected a group of fifty-eight boys, and gave twenty-nine of them a tablespoonful of honey every morning and another one in the afternoon, while the other twenty-nine boys were given none. All of them received the same diet, exercise and rest periods. The experiments were carried throughout the school year. At the end of this period Dr. Rolleder checked the

(Continued on page 169)

SIFTINGS--from various fields

By the Editors

"The sum total of the common sense of the common people is the greatest and soundest force on earth."—Thomas Jefferson.

"Beekeeping only pays when our bees are properly cared for and if anyone cannot spend the amount of time on them they require he had better keep out of the business, for sooner or later he will turn away from it in disgust."—G. M. Doolittle, February, 1877, Gleanings in Bee Culture.

"Last month a new bee journal appeared—its name 'Good Beekeeping.' The launching of the journal would appear to be the work of that aggressive society the Cheshire Beekeepers' Association. The times are difficult for such a venture. Good Beekeeping has made a pleasing beginning nevertheless. There are six bee journals in England and one in Scotland."—From Editorial page of May, 1944, "Scottish Beekeeper."

"There is scarcely a state where crop production could not be benefited, pastures improved and soil erosion lessened through a widespread beekeeping industry; yet few states have recognized the place of beekeeping in pollination, and few agricultural colleges and experiment stations give more than a passing thought to fostering beekeeping." Jas. I. Hambleton.

This past season, during early June, when shaking bees to fill package orders, we shook twelve pounds of bees from one very populous colony, at one time. This is the largest amount we have ever shaken from a single colony at one shaking (and we left some for seed). A few years ago we shook 22 pounds of bees from one colony during one season, prior to July 15. This colony built up to good strength on the fall flow and went into winter in good condition. Seems as though I heard of one Southern shipper who shook 30 pounds of bees from one colony during one season. Perhaps some Southern shippers will divulge some secrets along this line.—M. J. Deyell.

Royal jelly, the brood food of honeybees, was referred to as royal paste in 1866 and as royal fluid in 1867 issues of American Bee Journal.—M. J. D.

"All successful remedial measures for swarming, whether applied after the colony has acquired the swarming fever, or applied to colonies previous to the swarming season, have one factor in common—a temporary disturbance in the continuity of the emergence of young bees."—George S. Demuth.

"The practice of clipping the queen's wings was recommended by Virgil some 2000 years ago as a preventive of swarming."—Arthur M. Sturges in "Practical Beekeeping."

"Some 18 years ago, in an apiary away from home we had a number of swarms, which, in the rush of the honey crop we did not examine until the combs were built. In the fall we extracted from the brood chambers of nearly every colony, as was then our practice, leaving only seven Quinby frames on an average —for winter. The colonies that had crooked combs, were left with all their stores—ten frames because we could not disturb them without causing leaking and robbing. These colonies did not have to be fed the following spring, because they were strong and yielded the largest crop. This untried-for result caused us to make further experiments, which proved that there is a profit in leaving to strong colonies, a large quantity of honey, so that they will not limit spring breeding."—Langstroth in "The Honey-Bee." (Would that more beekeepers today would follow this advice.—Ed.)

Large vs. Small Queens. "Occasionally I find apiarists who want large queens. I must confess that the appearance of large handsome queens is very pleasing to the eye, but they do not, as a rule, prove to be the most prolific and profitable. Queens of medium size are usually the best."—Henry Alley in his book, "Beekeeper's Hand Book."

American Honey Institute News Notes

Mrs. Harriett M. Grace, Director

Members of the **Institute** received the following pieces of literature on honey from the **American Honey Institute,** Madison 3, Wisconsin, within the last few months:

Old Favorite Honey Recipes—52 pages. (Revised and Enlarged) Price $7.00 per hundred postpaid for limited time.

Honey—A 12 page booklet on the nutritional value of honey, $2.00 per hundred postpaid.

Honey Specialties for Bakers—16 pages, 5 cents each postpaid.

Honey to Start the Day Right—A six page folder, 80 cents per hundred postpaid.

Who's Who or the **Annual Directory** was also mailed to members. May we suggest that you order these books and leaflets as soon as you know the number you will need?

The March issue of Vitality News published by Products Control Department of General Mills, Inc., lists "Honey for Breakfast Week" in its **Promotion Schedule.**

It also features Hot Cross Buns (Honey Glazed). The hot-honey finish gives the buns the luscious glazed appearance of a luxury item without adding materially to the cost. This special glaze also permits the use of interest-arousing phrases such as "honey sweet," "delicious honey-glazed," and "honey-gold" in advertising of the item. And, of course, don't overlook the words **nourishing, appetizing, entirely new and different** in this connection.

"Incidentally this use of honey is in line with the War Food Administration's recent policy of releasing larger quotas of honey to bakers. Extra quotas are being released to bakers who can use honey in new products, particularly in ways that are likely to continue after the war as distinguished from temporary use of honey purely as a sugar substitute."

The Director of the Institute will give a radio broadcast on honey in April and one in May. She will give a talk on the American Honey Institute in Milwaukee on May 12. The program will be given for Home Economic graduates and faculty members of all colleges and universities in Wisconsin.

Extracts from letters—

"Old Favorite Honey Recipes is the best salesman we have ever had."

"I never knew one could make such good things until I started to use Old Favorite Honey Recipes."

"Send immediately 100 of the folder 'Honey to Start the Day Right'. It is excellent."

"Please forward 12 additional copies of your booklet Honey Specialties for Bakers."—Major - - -

"Your leaflets are the best honey-selling helps I ever came across."

A BACKLOT APIARY

This apiary belongs to Peter P. Karasch, Rice, Minnesota. Note the fence in the rear also the trees that help to protect the bees from the prevailing winter winds. Bees should have some shade from the sun, but not too much. The bees in this apiary are compelled to fly up in order to reach nectar and pollen sources nearby. This arrangement is ideal in that it helps to direct the line of flight over the heads of people or animals nearby.

Buy and Sell Here
CLASSIFIED ADS

Only responsible advertisers and honest advertisements will be admitted to these columns. References required from new advertisers not known to us. Rate 8 cts. per counted word, each insertion. Each initial, each word in names and addresses, the shortest word such as "a" and the longest word possible for the advertiser to use, as well as any number (regardless of how many figures in it), count as one word. Copy should be in by the 10th of the month preceding.

HONEY FOR SALE

HONEY FOR SALE—We buy and sell all kinds, any quantity. H. & S. Honey & Wax Co., Inc., 265-267 Greenwich St., New York.

FOR SALE—Buckwheat and fall honey in 60-lb. tin cans. Any quantity from can to carload lots. Cloverdale Honey Co-op., Inc., 113 Central Ave., Fredonia, N. Y.

WE BUY AND SELL all varieties of honey. Any quantity. Write us for best prices obtainable. The Hubbard Apiaries, Manufacturers of Beekeepers' Supplies, Onsted, Michigan.

HONEY FOR SALE—Ten ton of light mild honey imported from Chile. Strained in five gallon cans. Cans exchanged 15½ cents. F. O. B. here. CLOVER BLOSSOM HONEY CO., WILKES-BARRE, PA.

500 cartons six five-pound Ball glass, white caps, jars amber honey, silver color Uvalde labels, honey being in steam heat storage is in perfect condition, and from a Government approved inspected sanitary plant where the famous Uvalde District honey is packed on Government contracts. 10 cartons, $50.90; 50 cartons or over $5.00; shipping weight forty pounds. Terms cash; customer pays freight or comes for it. BEE-KIST PRODUCTS CO., San Antonio 6, Texas.

HONEY AND WAX WANTED

BEEKEEPERS TAKE NOTICE—We cannot guarantee honey buyers' financial responsibility, and advise all beekeepers to sell for cash only or on C. O. D. terms except where the buyer has thoroughly established his credit with the seller.

WE PAY CASH for extracted clover honey. Fairfield Honey Company, Millersport, Ohio.

WANTED—White and amber honey; any amount. D. F. Treap, 317 Keenan Ave., Cuyahoga Falls, Ohio.

HONEY AND BEESWAX. Highest prices paid. Mail samples. Advise quantity. BRYANT AND COOKINHAM, LOS ANGELES, CALIF.

HIGHEST cash return made the day we receive your beeswax. Write for shipping tags and quotations. Walter T. Kelley Co., Paducah, Kentucky.

CASH FOR YOUR HONEY—Extracted or comb. Regular trade, send sample. 60-lb. cans furnished, if desired. W. R. Moomaw, Stone Creek, Ohio.

HONEY WANTED—All Grades and Varieties. Highest Cash Prices Paid. Mail Samples. State quantity. HAMILTON & COMPANY, 1360 Produce St., Los Angeles, Cal.

Have you glassed honey, or honey in 60-lb. tin cans either white or light amber, that you have no sale for? If so, write TOWNSEND SALES COMPANY, Northstar, Michigan.

CLOVER HONEY WANTED—Large or small lots. Would like to establish permanent connections with several good producers. Ellsworth A. Meineke, Rt. 1, Arlington Heights, Ills.

HONEY WANTED—300 000 lbs. of honey we packed last year. We need that much for 1945 also. A postcard will bring our truck. If you sell without writing us, we both lose, because we pay top prices. You'll do better with the ALEXANDER COMPANY than with a distant corporation. Send your card today to the ALEXANDER COMPANY, 819 Reynolds, Toledo 7, Ohio.

FOR SALE

FOR SALE—My entire bee business, on account of failing health. J. J. Wilder, Waycross, Ga.

1000 good used cans 10 and 15 cent if I ship 15 and 20. Louis Ginstie, 2 Acacia, Dayton, O.

FOR SALE—1930 to 1944 Gleanings, complete, fair condition $16.00. Jesse R. Byler, Mattawana, Pa.

QUEENBEE PAINTING outfits, $1.00, colony records, 10-15c postpaid. Southwick Apiaries, Waban, Massachusetts.

BEEKEEPER'S HOIST—Inspection easy, $25.00 spring delivery. Freight prepaid in States. Bee Turner, Corning, Iowa.

ROOT—8-frame automatic reversible extractor, 2-frame extractor, both good condition. Paul Jennings, McClure, Ohio.

WRITE FOR LOW CASH PRICE glass jars. Complete stock. Prompt shipment. Roscoe F. Wixson, Dundee, New York.

YOUR WAX worked into high quality medium brood foundation for 16 cents per pound, 100 pounds, $12.00. Fred Peterson, Alden, Iowa.

WRITE FOR CATALOG Quality bee supplies at factory prices. Prompt shipment Satisfaction guaranteed. The Hubbard Apiaries, Manufacturers of Beekeepers' Supplies, Onsted, Michigan.

Used ten-frame equipment. Bodies, $2.50; excluders, 50c; extracting supers, 107 for $60.00; 36 8-frame supers, $20.00; bottoms, covers, metal lids. Numerous other articles. Earle Heiges, Shiremanstown, Pa.

SHALLOW (5⅜") EXTRACTING SUPERS—400 with good drawn combs; 200 with full foundation, 80 with empty frames. All 10-fr. Good white paint. No disease. Gerald Hodson, Amboy, Indiana.

A new Combined CONTROLABLE FEEDER AND SWARM CONTROL. Useful also as inner cover, bee escape and robbing preventive board in queenlessness and drying wet combs; as winter top entrance and pollen feeder. Sample with directions postpaid, $1.95. 5 (not assembled nor prepaid) for $8.00. NICOLLET COUNTY NURSERY, St. Peter, Minn.

ARIARY SIGNS eight for dollar, postpaid. Koenitzer, 1610 Humboldt, Manhattan, Kansas.

SELL TO BEST OFFER—18 8-fr. Jumbo hives, new frames, all wired fd. 10 8-fr. standard, 20 10-fr. 150 egg incubator. 32-20 rifle. Home well digger, wagon, water pump. John Wharton. Greenville, Tex.

SAVE MONEY by letting us work your wax into wired regular comb foundation. Large catalog describes everything. You pay only wholesale factory prices as we have no agents. Walter T. Kelley Co., Paducah, Kentucky.

SOMETHING NEW— INSTANT NINE FRAME SPACERS Fast, accurate, indispensable. Fat combs; Easy Uncapping; More Honey. Set does all supers. $1.50, postpaid. George Leys, 48 Drake Ave., New Rochelle, N. Y

COLLECT your pollen with simple traps that will fit any size hive. Conveniently installed and operated. Satisfaction after fair trial. Instructions for care and feeding pollen and flour cakes. 1, $1.00; 5, $3.50 third zone, 10c extra beyond third. C. W. Schaefer, Middleton, Wisconsin.

BEES AND QUEENS FOR SALE

GLEANINGS cannot guarantee that all bees advertised for sale in our classified columns are free from bee disease. We use all possible care in accepting advertisements but we cannot be held responsible in case disease appears among bees sold. We suggest that prospective buyers ask for certificate of inspection as a matter of precaution.

FOR SALE—Italian queens. Graydon Bros. Greenville, Ala., Rt. 2.

GOOD ITALIAN QUEENS, $1.00 each, ready in April. D. W. Howell, Shellman, Georgia.

PACKAGE BEES, QUEENS — Italian. Circular free. Crenshaw County Apiaries, Rutledge, Alabama.

CAUCASIAN BEES—2-lb. pkg., $4.10; 3-lb. pkg. $5,10. Booking orders now. Lewis & Tillery Bee Co., Greenville, Ala.

GOLDEN ITALIAN queens, any number, $1.25 each. Carolina Bee Farm, W. O. Curtis, Mgr., Graham, North Carolina.

ASSURE maximum crop with our gentle hardy Italian queens, $1.25 each, any quantity. Golden Girl Apiaries, P. O. Box 1468, Mobile 8, Alabama.

FOR SALE—3 pound packages Italian bees with mother queen, $3.50. Buyer to furnish shipping cases. Jno. W. Elliott, R. F. D. 2, Shelby, N. C.

ITALIAN QUEENS—Bred from the best honey storers, which are all right in other respects. Untested queens, from May 20th to June 15th, $1.50 each. White Pine Bee Farms, L. B. 80, Rockton, Pa.

QUEENS from prolific Italian breeding stock selected for honey production and not for color alone. 1 to 24, $1.25; 25 to 99, $1.10; 100 up, $1.00. Allen J. Airhart, 608 Cottage Lane, Lake Charles, La.

FOR SALE—600 colonies of bees in Ontario, with equipment, painted and factory made. House, honey house, and stable. Certificate of inspection furnished. Also includes profitable sideline. Good reason for selling. Box 3005, Gleanings in Bee Culture, Medina, Ohio.

HONEY WANTED
Carloads and less than carloads. Mail sample and best prices in all grades.
C. W. AEPPLER COMPANY
Oconomowoc, Wisconsin

WANTED--Extracted Honey All Varieties
One can or a carload—what have you? Mail your offerings and samples to us. Prompt action—Cash on delivery.
JEWETT & SHERMAN COMPANY
Lisbon Rd. & Evins Ave., Cleveland 4, O.
1204 W. 12th St., Kansas City 7, Mo.

N. W. BEEKEEPERS
BUY
LEWIS - DADANT
BEE SUPPLIES
in
MINNEAPOLIS
SAVE ON FREIGHT-FASTER SERVICE
SEND LIST OF SUPPLIES NEEDED FOR QUOTATION
•
HONEY AND BEESWAX WANTED!
HONEY SALES COMPANY
1806-08 No. Washington Ave.
Minneapolis 11, Minnesota

PACKAGE BEES
for Spring Delivery
with Three Banded Italian Queens of highest quality!
WRITE NOW for prices and open shipping dates.
• • •
JOHN C. HOGG
Tifton, Ga., U. S. A.

SOYBEAN FLOUR (Pollen Supplement) AND POLLEN TRAPS
We are distributors of Staley's Lo-Fat, High Protein expeller processed soyflour for beekeepers. The flour and materials for our pollen traps are of the highest quality.
KILLION & SONS APIARIES
Paris, Illinois

Pettit's Package Bees

Sold Out For April!

MAY PRICES 1945 U. S. Funds

Quan.	2-lb. pkgs. Qn.	Without	3-lb. pkgs. Qn.	Without	Ex. Qns.
1-2	4.00	2.75	5.00	3.80	1.25
3-27	3.85	2.65	4.90	3.70	1.20
30-96	3.70	2.55	4.70	3.55	1.15
99 up	3.50	2.40	4.50	3.40	1.10
JUNE PRICES 1945 U. S. Funds					
1-11	3.65	2.65	4.70	3.70	1.00
12-99	3.45	2.55	4.45	3.55	.90
100 up	3.20	2.40	4.20	3.40	.80

Try Pettit's Package Bees without queens to boost those weak colonies or early packages so they really produce honey. Send one dollar per package with order, balance ten days before shipping date. Bees leave here in good order. We replace shipping losses of bees and queens if reported promptly with signature of express agent showing percentage of loss and not blaming us.

MORLEY PETTIT

Tifton, Georgia

Pure Italian Queens and Package Bees

• • •

Due to heavy booking we have sold our supply for April and early May shipments. Can accept additional orders for shipment after May 10.

PRICES

Queens 1 to 49 $1.10 50 and up $1.00
2-lb pkg. with queen, $3.45; 50-up, $3.25
3-lb. pkg. with queen, $4.45; 50-up, $4.25
4 lb. pkg. with queen. $5.45; 50-up, $5.25

• • •

HOMAN BROTHERS

R. F. D. 2 Shannon, Miss.

200 10-frame 2 story colonies, bees disease free, at $15.00 per colony on yard as they stand, yard run. W. A. Wiley, 25 Commerce St., West Point, Miss.

SELECT ITALIAN QUEENS—If you are particular about queens, I ship the kind of queens you want. "No fooling." $1.25 each. J. H. McCartney, Piru, Calif.

PACKAGE BEES with young laying Caucasian queens, 2-lb. package, $3.80; 3-lb., $4.80. See us for queens after May 31, $1.00 each. Formerly Miller Bros., now write Miller and Evans, Three Rivers, Rt. 1, Texas.

NORTHERN QUEENS from prolific Italian breeding stock selected for honey production and gentleness. Available around June 1. Untested $1.00 any number. Booking orders now. Barger Apiaries, Carey, Ohio.

GREEN'S profit-producing queens will please you as they have pleased hundreds of others. Famous the country over. Where could you do better? Price, $1.00 each. Booked up on package orders. D. P. Green, Deland, Fla., Rt. 2.

EARLY PACKAGE BEES.—Prompt shipment begins May 1. 2-lb. packages and queen, $5.00 postpaid; 3-lb. package and queen, $6.50 postpaid. Choice Italian queens, $1.25. Safe arrival guaranteed. Birdie M. Hartle, Reynoldsville, Pa.

THREE BANDED ITALIAN QUEENS—fine honey producers, and easy to work with, 1-25, $1.25; 25-50, $1.20; 50-up, $1.15. Health Certificate with every order. Alamance Bee Company, George E. Curti, Mgr., Graham, North Carolina.

400 hives of bees, guaranteed free from disease, located in the heart of the Finger Lakes region, with comb honey equipment and quantity of extra supers and hives. 2, 4, and 6-frame extractor; 200 glass front wooden shipping cases, 16c each. 100 Danz. hive bodies, 50c each. C. B. Howard, 59 Lyceum St., Geneva, N. Y.

FOR SALE—Complete equipment for 50 colonies package bees. Includes 50 of each—covers, inner covers, bottoms, excluders, division board feeders. 200 10-frame standard hive bodies with drawn comb, also 200 combs honey and pollen for spring feed. Buyer will have access to bee yard located on M. 53 in Lapeer County. No disease. A. Tennenhouse, 12243 12th St., Detroit, Mich.

HELP WANTED

EXPERIENCED BEEKEEPER, man or woman wanted as partner. E. Reimer, Mystery Lake, Alta, Canada.

WANTED—Beemen experienced in honey production. Steady employment. Top wages. Soder Apiaries, Stratford, Iowa.

HELPER wanted for my Minnesota Apiaries. State age, experience, wages, etc. expected. E. E. Salge, Weslaco, Texas.

WANTED—To hear from married or single man interested in apiary work, top wages paid. Chas. L. Phillips, Fromberg, Montana.

WANTED

WANTED—To lease established apiaries and locations in New York State. Blossomdale Apiaries, Warrensburg, N. Y.

WANTED—To lease established apiaries and locations in California. Miles and Snell Apiaries, Riverdale, California.

WANTED TO BUY—Colonies of bees. State price. Thomas McDermott, 123 No. 11th Street, Newark 7, N. J.

SEEDS

BY EXPRESS COLLECT American Basswood trees, 4-5 ft. at $1.00; 5-6 ft., $1.50; 6-8 ft., $2.00; 3-4 ft. seedlings, 40c; for Cordata Basswood (earlier bloom) add 25c each; French Pussy Willow, 4-5 ft. (pollen producer), 75c; 3-4 ft., 40c; Red Dogwood shrub, 4-5 ft. at $20.00 per 50; Pink Tartarian or Morowii Honeysuckle, 4-5 ft. shrubs, 18-24 inch, $8.50 per 50; 2-3 ft. $11.00 per 50; 4-5 ft., $22.00 per 50.

BY MAIL PREPAID, 5 American Basswood Seedlings, 12-18 inch or 4 18-24 inch for $1.00; 2 3-4 ft. at $1.00; 2 Cordata Basswood, 3-4 ft. at $1.25; 2 4-5 ft., $2.00; 4 Pink Tartarian or 5 Morowii Honeysuckle shrubs, 18-24 inch for $100; 2 French Pussy Willow (pollen producer), 3-4 ft. for $1.00; 3 Red Dogwood, 18-24 inch, $1.00; 10 Siberian Pea Tree seedlings, 18-24 inch for $1.00. Personal checks require 10c (Oud best nectar and pollen producing shrubs and trees.) Can ship in March for South. A local Lewis-Dadant dealer. NICOLLET COUNTY NURSERY, St. Peter, Minn.

POULTRY

HELM'S GOVERNMENT APPROVED OFFICIALLY PULLORUM CONTROLLED CHICKS—Four world's records—Hatching year around-Sexed chicks. Free Brooding Bulletin—ILLINOIS HATCHERY, Metropolis, Ills.

SUPPLIES

SAVE ON LEWIS-DADANT BEE SUPPLIES AND HONEY CONTAINERS IN MINNEAPOLIS. Send list of needed supplies for quotation. Prompt shipment made from large stock. Top prices paid for honey and beeswax in cash or trade. HONEY SALES COMPANY, 1806-08 No. Washington Ave., MINNEAPOLIS 11, MINNESOTA.

MAGAZINES

MANY BEEKEEPERS have proven raising fox, mink, nutria, muskrats, rabbit highly profitable. Send dime for sample copy. Canada's oldest fur farming magazine tells how. Fur Trade Journal of Canada, Box 31, Toronto 2, Ontario.

WESTERN CANADA BEEKEEPER, official organ of the Manitoba Beekeepers' Association. One year, $1.00; in combination with one year's subscription to Gleanings in Bee Culture, $1.75. Wallingford Building, Winnipeg, Canada.

THE INDIAN BEE JOURNAL—The only bee journal in India. Sample copy free. Yearly, 7s, 6d., International Money Order. Apply Editor, Indian Bee Journal, Jeolikote, Dist. Nainital, U. P. India.

READ the South African Bee Journal to be conversant with conditions from far afield. Subscription 5/ per year. For further particulars, write to the Hon. Treasurer, P. O. Box 43, Cleveland, Johannesburg, South Africa.

THE BEE WORLD—The leading Journal in Great Britain and the only international bee review in existence. Specializes in the world's news in both science and practice of apiculture. Specimen copy post free.

SPRING IS HERE!

Again we are hitting the line with all we have. Our force is small, but we are determined to win. In spite of war's casualty in our ranks we are trying to carry on as we know Nels would have us do, however hard it is. We have been swamped with orders and we do regret some of them had to be returned because of dates being full. Off to a splendid and early start in queen-rearing, and package colonies responding to the favorable weather, sparked by young queens and ample stores or feeding, we may be in position to take a few more May orders for packages.

Output of queens completely taken until about June 1st.

JENSEN'S APIARIES

MACON, MISS.

Home of "Magnolia State" Strain Italians

PACKAGE BEES - QUEENS

THREE-BAND ITALIAN

I have a limited number of packages to offer from May 12 to June 1. Send in your order now for best shipping dates. NO MIRACLES, just a good prolific strain of Italians, personally reared.

PRICES

Quantity	Queens	2-lbs.	3-lb.
1-24	$1.25	$4.00	$5.00
25-99	1.15	3.75	4.80
100-up	1.05	3.50	4.50

You will like these bees, 10% deposit with order. Balance before bees are shipped.

EUGENE D. CUTTS

Citronelle, Alabama

Norman's Bees and Queens

--OF QUALITY--

For the best results and not excuses place your order with me and be sure of getting better-bred 3-band Italians of quality. I guarantee purely mated queens, full weight packages, safe arrival and satisfaction.

Packages F O. B. Express
State Health Certificate Furnished

Untested Queen	$1.25
Tested Queen	2.50
2 lb. Pkg. with untested queen	4.00
3 lb. Pkg. with untested queen	5.00

JOHN A. NORMAN

Rt. 2. Ramer, Ala.

NORMAN'S

Bright Italian Bees and Queens

For 23 years we have been breeding the Italian stock. We guarantee pure mating of Queens, safe arrival on Queens and package bees. Health certificate furnished

All package bees F. O. B. Express

2-lb. package bees with Queen	$4.00
3-lb. package bees with Queen	5.00
4-lb. package bees with Queen	6.25
Young laying Queens (each)	1.25

NORMAN BEE CO.
Ramer, Ala.

ITALIAN BEES AND QUEENS

Our years of experience in the Package Bee business enables us to give fine quality bees and queens. Railway service extra good assuring no delay in reaching northern points.

We are completely booked for the month of April.

Write now for quotations.

B. J. BORDELON APIARIES
Moreauville, La.

Italian Bees and Queens for 1945 Delivery

2 lbs. and queen, $4.00

3 lbs. and queen, $5.00

1 story colonies, 1 extra queen, $10,00

All orders booked on 20% deposit.

EUGENE WALKER

397 Oregon St.

GRIDLEY, CALIF.

"HONEY GIRL" ITALIAN PACKAGE BEES

Write us your anticipated requirements, approximate date of shipment desired, and we will advise what we can do.

ST. ROMAIN'S "HONEY GIRL" APIARIES

Moreauville, Louisiana

12 cents stamps. Membership in the Club including a subscription to the paper, 10/6. The Apis Club, L. Illingsworth. The Way's End, Foxston, Royston, Herts, England.

ANGORA GOATS

INTERESTED in Angora Goats? Read the Sheep and Goat Raiser, Hotel Cactus, San Angelo, Texas, the only ranch magazine published serving the Angora Goat industry. Subscription—$1.50. Sample copy—fifteen cents.

TOO LATE TO CLASSIFY

PACKAGED BEES—Young, thrifty Italians. Health Certificate furnished. Tanner Bee Company, Laurel, Mississippi.

POLLEN TRAPS—Approved by Dr. Farrar. Three sizes, $2.50 each, postpaid. Geo. DeKoeyer, Baraboo, Wisc.

HONEY HOUSE 28 x 56 2 stories with living quarters, also bee yards in Central New York. 1 20 fr. and 1 24 fr, Root extractors converted to radial from 4 fr., 2 Root uncapping cans. Very reasonable. Write Silas Vaughn, Hudson Falls, N. Y.

WANTED—Experienced bee man wants steady work in Idaho or Washington. M. Fowler, Dryden, Wash.

ITALIANS

Queens Queens Queens Queens
Proven Production from
TANQUARY'S BEES
Book now for Queens
Good Queens our Specialty
Safe Arrival Guaranteed
Write or telephone your order NOW!

—PRICES—

	1-24	25-49	50-100
2-lb. pkg. with queen	$4.15	$4.05	$4.00
3-lb. pkg. with queen	5.15	5.05	5.00
Extra Queens	1.25	1.20	1.15

Queenless packages, deduct $1.10 per package. After June 1, 15% discount on package bees and queens.

• • •

Tanquary Honey Farms, Inc.

LENA, SOUTH CAROLINA

Buy U. S. War Bonds

"HONEY AND YOUR HEALTH"

(Continued from page 161)

blood count of the boys who had received the two tablespoonfuls of honey daily, and found that the hemoglobin of nearly every boy showed an 8½% increase. The control group that had not received honey showed a corresponding loss.

"The famous Swiss sanatorium for children, the Frauenfelder Home in the Canton of St. Gallen, Switzerland, undertook an even more important experiment in this direction. Dr. P. E. Weesen of this institution chose three groups of delicate children and ordered normal foods one group, normal foods plus honey for the second, and normal foods plus tonics and medication but no honey for the third. The group fed with honey outdistanced the other two groups in every respect. Blood count, weight, energy, vivacity, and general appearance."

"Honey and Your Health" is the most complete treatise on the food and medicinal value of honey to be found today. There is much new information that was not available to Dr. Beck when he produced the first edition in 1937. Published by Robert McBride and Company, New York.

ITALIAN PACKAGE BEES AND QUEENS

We are now booking orders for 1945. Place your orders early for preferred shipping date.

F. E. MORRISON

Box 320 Butte City, Calif.

Australian Beekeeping News
The Leading Bee Journal of the Southern Hemisphere is the

"AUSTRALASIAN BEEKEEPER"

Subscription 5 shillings per year. Start any time. Inquire for International Money Order for 5 shillings (Australian) at your Post Office.
Write now to the editor, P. O. Box 20

West Maitland New South Wales
Australia

CHOICE ITALIAN QUEENS and Package Bees

Thanks a Million, Folks!

We cannot accept any more orders for package bees and queens for this season.

CLIFTON APIARIES

P. O. Box 684 Oroville, Calif.

PLEASE HELP US SERVE MORE PRODUCERS BETTER—

by extending your period of requeening with daughters of stock bred for resistance to AFB. Write for shipping dates.

IOWA STATE BEEKEEPERS' ASSOCIATION

State House Des Moines, 19, Iowa

NOTICE

No more orders accepted for Queens and Bees until so advised in the columns of Gleanings. Thanks!

Bolling Bee Co., Bolling, La.

Yes—We Put the Quality in

QUEENS

Three Band Italians

2 lbs., $4.00; 3 lbs. $5.10

Each additional pound, $1.10

Book your order early with

THE ANDERSON BEE COMPANY
OPP, ALABAMA

When writing to Advertisers mention Gleanings

MICHIGAN CLOVER HONEY

THE 1945 CROP OF MICHIGAN HONEY SHOULD BE READY FOR THE MARKET LATE IN JULY. If you are in the market for some of this FINEST OF ALL honey, write me, giving me an idea of the amount you will need during the coming season. While I cannot promise you honey, this request will go a long ways in helping you to secure your needs. Honey will be offered in 60-lb. cans, two in a WOOD shipping case at a little additional expense to you. Write me your needs. No obligations. Address TOWNSEND SALES COMPANY, Northstar, Michigan.

Buy U. S. War Bonds and Stamps

I Am Still Open for Orders of Italian Package Bees and Queens

at the following prices:

	1-24	25-49	50 up
2-lb. pkg.	$4.00	$3.85	$3.75
3-lb. pkg.	$4.85	$4.65	$4.50

20% to book order in advance.
Full weight, live delivery, prompt service guaranteed
We are booked to capacity until May 10th.

Oscar Arnouville
Hamburg, Louisiana

THREE BAND ITALIANS

	1-24	25-99	100 up
2 lbs. bees with queen	$4.00	$3.75	$3.50
3 lbs. bees with queen	5.00	4.75	4.50
Extra queens each	1.25		

For queenless packages deduct the price of queen.
20% deposit to hold shipping date. Balance two weeks before shipping.
W. E. PLANT
Hattiesburg, Rt. 2, Mississippi

ITALIAN BEES AND QUEENS FOR 1945

We still have a few good dates open. Order direct from this ad.
2-lb. package with queen, $4.00
3-lb. package with queen, $5.00
Queens $1.25
5% discount on 50 packages or more. Our bees are gentle and good honey gatherers. 25% will book your order..
WALKER APIARIES
Pharr, Texas

1945 PRICES
ITALIAN PACKAGE BEES WITH QUEEN
2 pounds and queen, $3.75 each
3 pounds and queen, $4.75 each
4 pounds and queen, $5.75 each
QUEENLESS PACKAGES
2 lbs., $2.85; 3 lbs., $3.85; 4 lbs., $4.85
20% down books order. Health certificate and safe delivery guaranteed.
HESSMER BEE FARM, Hessmer, La.

LEATHER COLORED ITALIAN QUEENS
MIDDLE TENNESSEE APIARIES
1 to 25, $1.25; 26 on up, $1.10
From Imported Strains.
¼ books orders. Balance before shipping. Add 5 cents for all queens by air.
J. B. TATE & SON
1029 No. 4th St., Tel. No. 34509M
Nashville 7, Tenn.

BUY U. S. WAR BONDS AND STAMPS

CARNIOLANS
CAUCASIANS

Sorry we cannot accept any more orders for package bees. Can spare just a few 10-frame colonies, tested (1944 reared) queens in May, $15.00; 8-frame colony, tested (1944 reared), queen, $12.00 each. fob here. Untested queens, June 1 on.
ALBERT G. HANN, GLEN GARDNER, N. J.

LEATHER COLORED ITALIAN BEES AND QUEENS
Good honey-gatherers and gentle
M. I. TINDAL BEE CO.
Greenville, Alabama

3-BANDED ITALIAN BEES
2-lb. pkg. with queen $4.00
3-lb. pkg. with queen 5.00
Queens 1.25
WRITE FOR DISCOUNT
J. P. CORONA,
Box 124, Kenner, La.

1945 PRICES
ITALIAN BEES AND QUEENS
2-lb. package with queen, $3.75
3-lb. package with queen, 4.75
4-lb. package with queen, $5.75
Prompt shipment and safe delivery guaranteed. 20% deposit on booking orders.
Order early and play safe.
CLOVER BEE FARM, Hessmer, La.

AMERICAN BEE JOURNAL
Hamilton, Illinois
Oldest bee journal in the English language. Keep up on markets, practices, scientific data, regulations, plant possibilities.
Two years, $1.50—Order today!

GASPARD'S QUALITY ITALIAN QUEENS AND PACKAGE BEES
We are now booking orders for Spring, 1945.
Only 20 per cent with order, balance at shipping time.
PRICES AS FOLLOWS:
2-lb. package with queens $3.75
3-lb. package with queens $4.75
4-lb. package with queens $5.75
Comb packages with one frame of brood add $1.50 per package
J. L. GASPARD
HESSMER, LOUISIANA

When writing to Advertisers mention Gleanings

Three Band Italian Package Bees

Full weight—Prompt shipment—Young bees. State Health Certificate with each shipment. Live arrival guaranteed. Replacement or refund made promptly upon receipt of bad order from your express agent.

OUR 1945 PRICES

2-lb. pkg. with queen	**$3.70**
3-lb. pkg. with queen	**4.80**
4-lb. pkg. with queen	**5.90**
5-lb. pkg. with queen	**7.00**

Extra queens are $1.10 each. We charge $1.00 extra for introducing the package queens.

Payable in U. S. Funds

We are booked up for this season on extra Untested Queens. If bees are wanted without queens deduct $1.00 from each package.

JACKSON APIARIES

FUNSTON, GA.

BERNELL'S THREE BANDED LEATHER COLORED ITALIANS

All Queens and Drones used in our breeding yards are from stock bred for resistance

From past performance, we recommend this stock for resistance and prolificness

2-lb. package bees, with queen,	**$4.00**
3-lb. package bees, with queen,	**5.00**
Queens, each	**1.20**

R. L. Bernell

Rt. 6, Box 270, New Orleans 17, Louisiana

1945 Package Bees and Queens 1945

Again We Offer You — **BRIGHT 3-BANDED ITALIANS — YOU CAN COUNT ON US** — **The Best Kind You Can Buy**

We will do our utmost to ship the day you specify. We are not the biggest shippers of package bees and queens, but we rank with the best in quality and service. Safe arrival, satisfaction guaranteed, health certificate furnished. In U. S. A. and Canada.

PRICES TO JUNE 1st

	1-49	50-100
2-lb pkg. with queen,	$4.00	$3.85
3-lb. pkg. with queen,	5.00	4.85
Untested queens,	1.25	1.15

Package bees, F. O. B. express; if by parcel post, add postage

Norman Bros. Apiaries, Ramer, Alabama

GREETINGS

We are practically booked to capacity on Package Bees for 1945. If weather conditions are favorable we may be able to handle a few more orders.

We should be able to handle promptly any Queen Orders after June 1st.

You may be sure that we will do all we can to get out every Package and Queen possible, consistent with Quality.

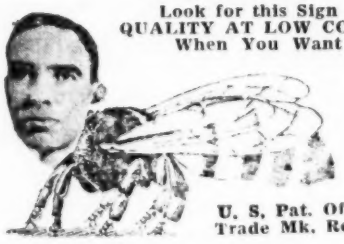
— PRICES —

ITALIANS		Through May 20th			CAUCASIANS
Lots of:	Queens	2-lb.	3-lb.	4-lb.	5-lb.
1-24	$1.25	$4.00	$5.10	$6.20	$7.30
25-99	1.15	3.75	4.80	5.85	6.90
100 up	1.05	3.50	4.50	5.50	6.50

For Queenless Package Deduct Price of Queen.

The Stover Apiaries

MAYHEW, MISS.



KELLEY — "The Bee Man"

Feed Your Bees Pollen Substitutes

Bees require large amounts of pollen in the spring for brood rearing and if your bees are short they will not build up as rapidly as they should.

GOVERNMENT AUTHORITIES RECOMMEND FEEDING POLLEN SUBSTITUTES STARTING MARCH 10TH TO 20TH IN REGIONS WHERE THE MAIN HONEY FLOW BEGINS IN JUNE.

We are publishing a circular giving latest information and prices on substitutes we have in stock for quick shipment.

THE WALTER T. KELLEY CO.

Paducah, Kentucky

This photo shows portion of one of our queen yards containing over 6000 nuclei

ITALIAN PACKAGE BEES AND QUEENS

2 lbs. with queen $4.00
3 lbs. with queen 5.00
Extra queens, each 1.25

Several thousand extra queens available. Write for prices on large orders.

OVERBEY APIARIES, BUNKIE, LA.

INSTALLATION AND CARE OF PACKAGES IN SASKATCHEWAN

(Continued from page 123)

though a queen were present and the queen is introduced in the mailing cage as soon as she is obtained. This method cannot be carried out if the new queen is not obtained immediately.

Care of Package Bees After Installation

The succession of honey plants usually supplies sufficient honey and pollen to stimulate the bees for the main honey flow. Hives that are well provided with feed at hiving time and carefully hived require little attention other than providing supers at the right time. It is the poorly fed and poorly hived bees which require considerable manipulation for very small returns.

Supersedure of queens in packages after they have been installed for several weeks is causing some concern in the province. Last season, queen losses were much heavier from some shippers than others, even when installed by the same beekeeper in the same yard. It is definitely known that bees will vary from year to year from the same shipper because of weather conditions during the shipping season, but some shippers have too large a number of package and queen replacements to make every year. Most shippers have very few queen replacements but others have replacements up to 48% in extreme cases.

There is evidence supporting the belief that Nosema is responsible for some loss of queens but, at the present time, there is no accurate data on this subject.

Saskatchewan beekeepers have a ten year provincial average production of 100 pounds per colony. With equal crop prospects in view and a well organized industry to assist them to purchase their bees and to sell their honey, the beekeepers of the province are looking forward to greater expansion.

RENDERING BEESWAX

(Continued from page 134)

and fitted over this cover it is well to have a double thickness of asbestos sheeting for an insulator. I also wind two or three thicknesses of asbestos round the outside of the extractor to conserve heat. In this way the steam rises and condenses upon the bits of combs and cappings melting the wax causing it to run down and out. Each morning it is well to clear the inner wire basket of waste before starting another batch.

I also try to render cappings separately as one gets but a small amount of slumgum from these and will not need to clean the basket so often. The dirty bits of comb and old brood comb are run off by themselves, or, as I said before, I prefer to send old brood comb away, for to get the wax from them is a fussy dirty job.

Once I came near starting a fire and I will tell how it happened so that beginners may not make the same mistake. I had an order for 12 pounds of wax and the man wanted fine yellow wax. I had rendered all the wax and then planned to run it through again to wash it thoroughly. It takes a large container to hold 12 pounds of melted beeswax with a gallon or so of water. I had such, a tin vessel holding some six or seven gallons. I poured a lot of hot water into this on the laundry stove and then put in my wax. Now the wax went in cold and wax and water filled the container to about ¾ of an inch of the top. I failed to allow for expansion. Beeswax has a very high coefficient of expansion. I left the thing for a short time and came back to see how everything was. The wax had melted and had expanded until it was just about ready to dribble over onto the hot stove. Had I been gone ten minutes more disaster would have followed. Therefore, never overfill any con-

(Continued on page 181)

PACKAGE BEES AND QUEENS

PROGENY-TEST 3-BANDED ITALIAN STRAIN. Also MRAZ'S and other RELIABLE BREEDERS STRAINS of High Quality Daughters of Stock Bred for Resistance.
We can accept orders (mostly small orders) from May 15th and later for package bees with queens. Also some loose queens.
We will be able to supply queens on short notice beginning end of May or early June, however, for earliest dates we advise booking far in advance.

HEALTH CERTIFICATE ACCOMPANIES EACH SHIPMENT

	2-lb. Pkg. With Queen	3-Lb. Pkg. With Queen	Queens
1-9	$3.70	$4.70	$1.10
10-24	3.60	4.60	1.05
25-99	3.55	4.55	1.00
100 and up	3.45	4.45	.95

QUALITY AND SERVICE

GARON BEE COMPANY

Telegrams, Western Union **Telephone 8614**

DONALDSONVILLE, LA.

Sunny South Apiaries

Bunkie, La., I. Clark, Prop.

5000 PACKAGES OF BEES — ITALIANS
10,000 Queens—Available for April and May shipments.

Buy WAR BONDS and HOLD THEM

2-lbs. with queen	$4.00
3-lbs. with queen	5.00
Extra queens	1.25

PACKAGE BEES — ITALIAN QUEENS

Light, 3-Banded Italians reared from queens tested for heavy honey producing. Long life, good winter resistant and gentle. Stock I have been breeding from since 1926 and have made me continuous good customers. Can also furnish queens reared direct from government queen resistant to disease. Also have access to thousands of colonies of Association Members, for large orders, free from disease. War veterans preference and 5 per cent discount.

On all checks under $100 add exchange fees of 10 cents. Over $100 add 20 cents. No exchange on P. O. money orders.

Queens of either stock	$1.25
Bees, 2-lb. with queen	3.90
Bees, 3-lb. with queen	4.90
Per extra lb.	1.10

HOMER W. RICHARD

Route 3, Box 252A **Phone 1370** **El Dorado, Arkansas**

THE AVOIDANCE OF BEE POISONING

(Continued from page 131)

more of the total amount applied drifting over surrounding vegetation for a distance of two miles or more. The beekeeping interests feel that the orchardist and the general farmer have the right to apply insecticides in effecting the control of injurious insects. At the same time, it is to the mutual interest of the fruit grower and general farmer who profit most by the activities of the honeybee, to use insecticides and practices that will cause the least amount of injury to the beekeeping industry.

A probable solution of the bee poisoning problem:

The most effective solution of the bee poisoning problem would be by legislation to prevent the improper use of agricultural chemicals. If it could be made a misdemeanor to apply chemicals that are toxic to bees, to fruit trees in bloom or to apply agricultural chemicals by such means or under such conditions that would cause them to be deposited on adjacent property in quantities that are injurious to honeybees, livestock and other property, 90 per cent of the losses now suffered would be prevented.

The beekeeping industry would not be asking too much for the protection of its industry because the increased efficiency of the use of the chemicals would result in more effective insect control and a balanced agriculture would be maintained by the preservation of pollinating and other beneficial insects.

ITALIAN PACKAGE BEES AND QUEENS

Queens, $1.25 each
2-lb. pkgs. with queens, $4.00
3-lb. pkgs. with queens, $5.00

For less than a 25 package order of bees, add 25 cents per package to the above price. 4% extra queens with each shipment.

JOHN S. SHACKELFORD
Live Oak, California

Lest You Forget–

The Good Rule To Go By
ITALIAN BEES AND QUEENS
2-lb. pkgs. with queen....$4.00
3-lb. pkgs. with queen 5.10
Queens 1.25
Our aim—once a customer always a customer.

Alabama Apiaries
Uriah, Ala.

Package Bees With Queens

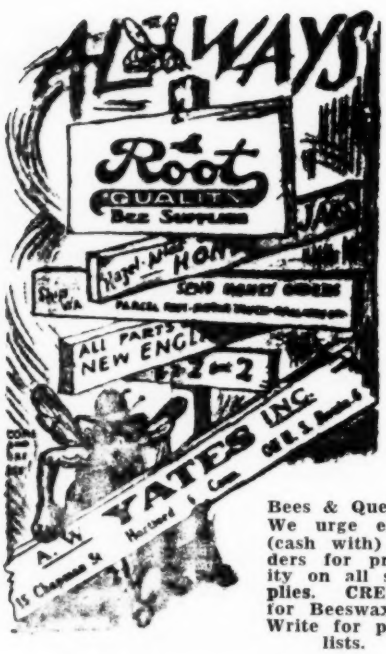
We can accept a few more orders for May delivery.
Good overweight and safe arrival guaranteed.
2-lb. with queen, $4.00; 3-lb., $5.00
10% deposit books your order.
Prices quoted on quantity lots.

CANEY VALLEY APIARIES
Bay City, Texas

ITALIAN BEES AND QUEENS

We are booking orders for Spring, 1945 Only 20% with order, balance ten (10) days before shipping date. Prices as follows:
2-lb. package with queens, $3.50
3-lb. package with queens, 4.50
4-lb. package with queens, 5.50

THE STAR BEE FARM
Hessmer, La.



Bees & Queens. We urge early (cash with) orders for priority on all supplies. CREDIT for Beeswax. Write for price lists.

DIXIELAND'S

Leather-Colored Italians, package bees and queens for shipment after May 12th. Also package bees and queens for June delivery.

	Queens	2-lb. pkg.	3-lb. pkg.	4-lb. pkg.
1-24	$1.25	$4.00	$5.10	$6.20
25-99	1.15	3.75	4.80	5.85
100-up	1.05	3.50	4.50	5,50

Dixieland Apiaries
Greenville, Alabama

World Conditions Demand Food

Your bees will have to produce a maximum amount of honey with the material at hand. This means that the best management will be used. Your ROOT QUALITY BEE SUPPLIES will give you the best results possible if handled correctly. We are here to help you in every way that we can. Call or write us.

A. I. Root Co. of Chicago
224 W. Huron St., Chicago 10, Ills.

A. I. Root Co. of Indianapolis
121 N. Alabama St., Indianapolis, Ind.

A. I. Root Co. of Syracuse
1112 Erie Blvd., Syracuse 3, N. Y.

A. I. Root Co. of Iowa
Council Bluffs, Iowa

The A. I. Root Co., 12 W. 21st St., New York, N. Y.

BETTER-BRED QUEENS---Three-Banded Italians

It is not what we say in this ad that counts. It is the service and quality we give you that counts. We have some open dates between the first and 10th of April, more later if weather permits.

	Queens	2-lb.	3-lb.	4-lb.	5-lb.
1 to 24	$1.50	$4.25	$5.35	$6.45	$7.55
25 to 99	1.40	4.00	5.05	6.10	7.15

CALVERT APIARIES, Calvert, Alabama

ARE YOU WONDERING—

Where are you going to get your PACKAGE BEES and QUEENS for April and May? We can accept your orders for Bees or Queens, and get them to you on time.

2-lb. pkg. bees with queen $3.50
3-lb. pkg. bees with queen 4.50
Queens, $1.10 or lots of 100 or more 1.00

Our queens are daughters of stock bred for resistance to disease. We guarantee live delivery.

Lucedale Apiaries, Lucedale, Mississippi

ITALIAN PACKAGE BEES AND QUEENS

We hope to accept more orders if conditions permit during the current month and May. Refer to previous ads for prices.

Order your summer and fall queens now while dates are available. We appreciate your patronage and sorry that so many orders could not be handled this spring.

BESSONET BEE COMPANY, Donaldsonville, La.

QUEENS 3 KINDS

$1.25 each — Send for FREE circular

ITALIANS
Caucasians bred to Italian drones
Daughters of Queens bred for Resistance
2-lb. pkg. bees with queen, $4.00 — 3-lb. pkg. bees with queen ,$5.00
Over 25 years a shipper in U.S.A. and Canada

BLUE BONNET APIARIES, Route 1, Box 70, Mercedes, Texas

The Hubbard APIARIES

WRITE FOR FREE CATALOG

Quality Bee Supplies. Factory Prices
Prompt Shipment from Stock
Satisfaction Guaranteed

THE HUBBARD APIARIES

Manufacturers of Bee Supplies

ONSTED, MICHIGAN

York's
Package Bees and Queens

Quality Bred Italians

Booking orders now for late May and June shipping. Ample young laying queens available during late May and throughout the summer.

2-lb pkgs., bees with queens $4.25 each
3-lb. pkgs., bees with queens 5.25 each
Young laying queens 1.30 each
Queenless pkgs. deduct $1.10 per pkg.

York Bee Co.

Jesup, Georgia, U. S. A.

(The Universal Apiaries)

Three Banded
Italian Queens

Available after May 20

Let Us Book Your Order Now!

The Haselmaier Apiaries

Mt. Vernon, Ala.

We Doed It Again

WHAT?

SOLD all the package bees we can book for shipment before May 15. If the weather and colony conditions are favorable we may be able to supply a small number of packages with queens and queenless bees for April. However, this will take time to tell.

We have made an effort to accept and book all orders of our old customers and as many new ones as we could reasonably expect to ship on time.

To those to whom we had to return orders, please accept our regrets. To the others, we thank you.

Rossman & Long

Box 133 Moultrie, Ga.

PACKAGE BEES AND QUEENS

Leather Colored Italians
Bred for Production

Prices of Package Bees with Queens			
Lots of	2-lb.	3-lb.	Ex. Queen
1 to 24	$4.00	$5.00	$1.25
25 to 99	3.85	4.80	1.10
100 or more	3.75	4.70	1.10

Terms, 25% deposit to book order, balance ten days before shipping date. We replace any bees that die in transit if it is our fault, if it is the carriers' fault, file claim with them. We are now shipping. Old customers will be given preference.

THE ISLAND APIARY

Collier City, Fla.

LAST HALF MAY

We are booked to capacity through May 25th. If you can accept shipments after that date, we will ship first date available.

PRICES:

	1-2	3-24	27-99	Above
2-lb. pkg. with queen	$3.90	$3.65	$3.50	$3.35
3-lb. pkg. with queen	4.90	4.65	4.50	4.35
4-lb. pkg. with queen	5.90	5.65	5.50	5.35

For queenless packages, deduct $1.00

For Spl. Loose-Queen Pkgs., add $1.00

Untested Italian Queens $1.00, Tested $2.00

All orders should be accompanied with $1.00 per package deposit to confirm and hold shipping assignments. Balance due before shipping date.

THE PUETT COMPANY

Hahira, Ga.

PACKAGE BEES FOR MAY AND JUNE

Thanks to satisfied customers, I am booked for April delivery but accepting orders for May and June of light three-banded Italian Bees and Queens. Live delivery guaranteed. No C. O. D. orders accepted.

	2 lbs.	(with queens)	3 lbs.
1-24	$4.00	1-24	$4.80
25-49	3.80	25-49	4.60
50 on up	3.60	50 on up	4.40

Queens, select untested, after May 20, $1.00 each

PLAUCHE BEE FARM

HAMBURG, LOUISIANA

PACKAGE BEES WITH CARNIOLAN QUEENS

2-lb. packages with queen, $4.00 each, f. o. b.
3-lb. packages with queen, $5.00 each, f. o. b.

EPHARDT'S HONEY FARMS, PLAUCHEVILLE, LOUISIANA

PACKAGE BEES AND QUEENS — CAUCASIANS OR ITALIANS

2-lb. Package and Queen ..... $4.00 each
3-lb. Package and Queen ..... 5.00 each

Over a quarter of a century in the same place, in the same business, is my record. My motto: "I will expect to do business with you again."

H. E. GRAHAM, CAMERON, Texas

The Monthly Honey Market

WAR FOOD ADMINISTRATION

Office of Marketing Service

Washington, D. C., March 1, 1945.

SUMMARY

Weather conditions during the latter half of February have been favorable in nearly all sections of the country. While winter weather prevails over the northern half of the country, temperatures in most areas have been only moderately cold and over the Lake States and northeast the deep snows which fell during the past winter have begun to disappear. Wintering conditions seem to be fairly favorable in nearly all sections. Even in that portion of the country which had extremely deep snows and a very long period of confinement for the bees, preliminary examinations indicate that losses may not be as heavy as earlier anticipated, although it is quite evident that losses through this area may be reasonably heavy both from actual dead colonies and from dwindling. Moisture conditions are generally favorable. Portions of the Intermountain Region would benefit from heavier snows in the mountains which would assure more ample irrigation water.

Broodrearing is beginning in a limited way except in the extreme northern States and through the southern belt of States broodrearing is becoming quite active. In the ti-ti section of north Florida and southern Georgia and Alabama some hives are already trying to swarm. Pollen has been very abundant in most sections. The citrus flow is starting in Florida and in the southeast ti-ti is also beginning to yield. These are the two principal sources of early honey in this area. Southern package bee and queen producers are becoming more active in their spring manipulations and some package bees should be ready for shipment during the latter half of this month. Labor shortages are still interfering with this work.

Demand for honey in wholesale and retail channels is somewhat lighter than at this time a year ago, and in some sections is slow. This may be accounted for by plentiful supplies of sirups which are selling at relatively lower prices than honey. Also in some sections offerings of poor-grade honey has had an injurious effect on the demand for better quality packs. Honey is becoming increasingly scarce in the hands of producers, but to all appearances there will be a sufficient supply to take care of the needs until new crop honey is available. At the beekeepers' level, ceiling prices of 12c per lb. in case to ton lots and 15c per lb. in single 60s to consumers have continued except for some dark or low-grade honey. Wholesale prices also continue at ceiling, but reports indicate that in some sections of the country a few retailers are selling slightly below ceiling levels.

Offerings of beeswax have been very light, with all sales continuing at the ceiling of 41½c cash and 43½c in trade f. o. b. to beekeepers.

ROOT QUALITY BEE SUPPLIES

For Michigan

ROOT QUALITY BEE SUPPLIES

The best factory made bee supplies pay top dividends in the long run and the best outfits have the highest resale value. We speak from experience.

FOR GREATEST PROFITS IN 1945

Produce SECTION or CUT COMB honey. We carry everything for the comb honey producer and a complete line of packages for CUT COMB HONEY. Write for prices.

SPECIAL ITEMS NOT LISTED IN CATALOG
f. o. b. Lansing

Methyl Bromide 1 lb. cans	$1.10
3" gummed tape, per roll	.75
Paraffine Wax in bulk, per lb.	.11
Permanent Black Acid Stamping Ink, bottle	.70
Uninked stamp pad	.30
Paradichlorobenzine, 3-lb. 75c, 10 lb. $2.30, 50-lb.	10.00
Carbolic Acid 1-lb. jars, 75c, 5-lb. cans	3.00
Cyanogas in cans, ½-lb. 45c, 1-lb. 75c, 5-lb,	3.00
Carton sealing glue 1-lb. 10c, 10-lb.	.75
Soybean Flour 10-lb. $1.40, 50-lb. $4.00, 100-lb.	7.40
Special valves for bottling honey	8.50
Label Moistener, f. o. b. factory only	5.00
Motor driven label pasting machine	75.00
1½ H. P. Hand Fired High Pressure Boiler	165.00
2 H. P. High Pressure Boilers complete with automatic gravity feed OIL BURNER	275.00
2 H. P. High Pressure Tubular Boiler complete wih Automatic Natural or CITY GAS BURNER	225.00

BEESWAX WANTED
Cash Price, 41½c lb. Trade Price, 43½c lb. Freight paid on 100 lbs. or more.

M. J. BECK COMPANY

Successor to M. H. Hunt and Son

510 N. Cedar St. Box 7 Lansing 1, Mich.

RENDERING BEESWAX

(Continued from page 173)

tainer of wax and water if it is set on a hot stove. Also never leave it. Stay right by it. More than one beekeeper has lost his shop from wax rendering and one or two have lost their lives at the same time.

To render a little wax without much trouble, put the bits of comb and refuse into a bag and sink that bag in a container of water on the stove and when it has cooked long enough punch the bag with a stick. Most of the wax will run out of the bag and come to the surface where it can be skimmed off after being allowed to cool. You will not get all the wax but you save a lot of labor in getting what little you expect to get.

Norwichtown, Conn.

JUST NEWS

(Continued from page 145)

essential agricultural activities, and who cannot be replaced. Beekeeping has been placed in the essential agricultural category on several occasions.—Roy Grout, Sec., Beekeeping War Council.

Mr. E. M. Cole, an outstanding beekeeper of Iowa, passed on recently.

The beekeepers of the Lower Rio Grand Valley met on March 2 at Weslaco, Texas, and organized themselves into The Lower Rio Grand Valley Beekeepers' Association, with E. B. Ault, Weslaco, President, H. Hansen, LaBlanca, Vice-president, and Sam Nixon, Mission, Secretary-treasurer.

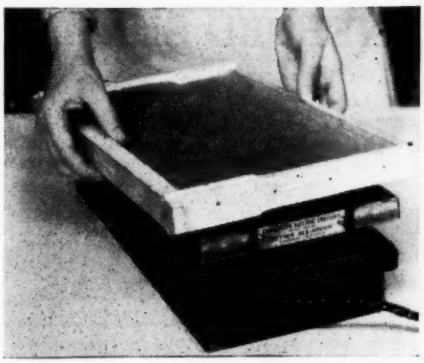
80 YEARS AMONG THE BEES

(Continued from page 137)

ciple of the air going direct from the bellows through the slowly burning fuel. This made a dense smoke. A patent was granted to T. F. Bingham covering this direct-draft feature. Then came the cold blast smokers, the blast of air from the bellows passing into the fire cup **above** the slow burning fuel. The smoke was not as dense and it was cold, hence the name "cold blast."

Many thousands of these were sent out under the name of Clark's Cold Blast Smoker at the low price of 50 cents. But as the smoke was less subduing, when the patent expired all smokers were constructed on the original hot blast principle and have been so made ever since.

(to be continued)



NEW
CARPENTER'S ELECTRIC IMBEDDER

Built from a lifetime experience with bees. Speedy device will imbed all four horizontal wires at once. Simply place foundation in frame and press down lightly until contact has been made—wires imbedded evenly. Will last a lifetime. Quality workmanship.
Price $7.50 f.o.b. Riverside, Cal.
G. A. CARPENTER
4266 Homewood Court
Riverside, Cal.

BEEKEEPERS ITEM

Serving the beekeeping industry for a quarter century without bias or prejudice. "The forum for the thoughtful." One year $1.00; two years, $1.50; sample copy, 3c stamp.

With Gleanings it provides a combination that covers the beekeeping field.
Both magazines for one year, $1.75
BEEKEEPERS ITEM
P. O. Box 687 San Antonio, Texas

ABC & XYZ OF BEE CULTURE

The demand for the 1945 edition of the A B C & X Y Z of Bee Culture has so far exceeded previous sales that we have not been able to get the books bound fast enough. We are informed now that it will probably be sometime in June before we will receive another shipment of the A B C & X Y Z of Bee Culture.

THE A. I. ROOT CO., MEDINA, O.

NEEDED SUPPLIES – HARD TO BUY!
(We have them)

No. 14—4 fr. Non-Reversible Extractor, Hand Power	$14.75
No. 6—2 fr. Non-Reversible Extractor, Hand Power	11.75
10 fr. Wire Queen Excluders, wood bound, 5 or more ..... each	.80
25-lb. lots Thin Surplus Foundation (following sizes) 3⅞ x 16 - 4½ x 16½ - 4¼ x 17¼ - 3⅛ x 14¼	19.75
25-lb. lots "Hercules" Plain Brood Foundation	17.50
25-lb. lots "Hercules" WIRED Brood Foundation	18.50

Brood Foundation Sizes 8 x 16¾ or 8½ x 16½

HAVE YOU TRIED OUR "HERCULES" WIRED IRONSIDES FOUNDATION?
WITHOUT A DOUBT THE BEST FOUNDATION ON THE MARKET.

100 Sheets	$12.50	
50 Sheets	6.50	8½ x 16½
10 Sheets	1.35	O N L Y

2-lb. Pkg. Bees with Queen (untested - untreated)	$3.50
3-lb. Pkg. Bees with Queen (untested - untreated)	4.50
1 Queen Bee, Ultra Violet Ray Treated ..... each	1.25
Wire Face Bee Veil ..... each	.80
Bee Escapes ..... each	.12
Smokers 4 x 7 ..... each	1.00
2" Hive Staples ..... per lb.	.30
COMB HONEY SECTIONS	
No. 1 Grade 4¼ x 4¼ x 1⅞ ..... per 500	6.60
No. 2 Grade 4¼ x 4¼ x 1⅞ ..... per 500	5.90
No. 1 Grade 4¼ x 4¼ x 1⅞ split 3 sides ..... per 500	7.10
Cellophane Wrappers for above sections ..... per 100 sheets	1.25
Cellophane Wrappers for above sections ..... per 500 sheets	5.50
1 lb. Glass Honey Jars, packed 2 doz. ..... per case	1.00
2 lb. Glass Honey Jars, packed 1 doz. ..... per case	.90
5 lb. Glass Honey Jars, packed ½ doz. ..... per case	.55
5 lb. Friction Top Cans, packed 50 ..... per carton	3.75
10 lb. Friction Top Cans, packed 50 ..... per carton	5.00
Bee Gloves ..... per pair	.75

TERMS: CASH WITH ORDER, F. O. B. CINCINNATI
WE WILL BUY YOUR HONEY AND BEESWAX AND PAY THE CEILING PRICES.
NO LOT TOO SMALL OR TOO LARGE. WRITE US.
We also render wax from your old comb or cappings and work your wax into comb foundation. Write for our general price list.

THE FRED W. MUTH COMPANY

229 WALNUT ST. CINCINNATI, OHIO

Look for this Sign
QUALITY AT LOW COST
When You Want

U. S. Pat. Off.
Trade Mk. Reg.

KELLEY — "The Bee Man"

Glass - Tin

16 oz. Economy Jars, carton 24 each,	$ .70
32 oz. Economy Jars, carton 12 each,	.42
5 lb. Economy Jars, 12 cartons,	5.00
24 cartons,	9.95
60-lb. Square tin cans, carton of 16,	5.40

Quick shipment from large Paducah stock

THE WALTER T. KELLEY CO.

Paducah, Kentucky

Buy U. S. War Bonds and Stamps

Aitken's Perfect Vision Veil

Made from war developed plastic, full Flexiglass face, clear vision, good ventilation, weight 1½ oz. Folds for the pocket. Worn with or without hat. Developed and tested in our own apiary, $1.25 postpaid.

Thomas Aitken Co.,

2226 Ruskin Ave., Columbus 3, O.

Send for free catalog—hundreds more!

—GOT A HOBBY?--

Keep up with the latest developments in your field. Here's a group of magazines that specialize in a particular subject! Send your subscription today!

Gleanings in Bee Culture, $1. per year
Beekeepers' Item, $1.
American Bee Journal, $1.

DAIRYING
American Dairy Goat News, m., $1.
Dairy Farmers' Digest, $1.
Dairyland News, s. m., 50c.

FARMING
The Country Book, quarterly, $1.
Farmers' Digest, m., $2.

FRUIT
Better Fruit, m., $1.
Eastern Fruit Grower. $1.

LIVESTOCK
Berkshire (Hog) News, m., $1.
Chester White (hog) News, m., $1
Southeastern Cattleman, $1.
Pacific Stockman, $1.
The Sheepman, $1.
Arizona Stockman, m., $1.50
Plantation Stockman, m., $2
Coastal Cattleman, m., $1.

HORSES
The Horse, bi-monthly, breeding, schooling, training, horse sports, $5.
Thoroughbred (Horse) Record, w., $4.
Rider and Driver, m., horse-sport-pleasure, $3.50
Spokesman & Harness World, m., $1.

PIGEONS
American Pigeon Journal, Squab-fancy, $1.50
Pigeon News, fancy only, $1.50

RABBITS
Small Stock (rabbits, cavies), $1.
American Rabbit Journal, m., $1.
Inter. Comm. Rabbit Journal, (Angora) $1.

OTHER SPECIALTIES
The Soybean Digest, $1.50
New Agriculture (sugar beets only) $2
Small Com. Animals & Fowls, 50c
Co-operative (Farmers) Digest, $2
Modern Game Breeding, m., pheasants, $3.
Black Fox Mag., m., fox, mink, $2
Frontiers (natural history) 5 issues, $1
Canary Journal, m., $2.
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Eagle Mail Order News, m., $1.
Good Health, m., $1.
Canary World, m., $1.25.

All magazines are monthlies unless otherwise noted; prices are for one full year. Satisfaction guaranteed. All orders are handled promptly and acknowledged. Rush your subscription today. Remit in any way convenient to you.

MAGAZINE MART

Dept. G B Plant City, Florida
Sample copies at single copy prices.

Buy Your Supplies Early

Sections, hivebodies, frames, foundation, containers, and other bee supplies of the finest quality!

Prompt Service
Guaranteed Satisfaction

August Lotz Company

Manufacturers and Jobbers of Bee Supplies
BOYD, WISCONSIN

NOTICE

Write for prices for having your wax made up or outright purchase of

SCHMIDT'S Economy Foundation

Not excelled for quality strength and workmanship

Satisfaction Unconditionally Guaranteed

Oscar H. Schmidt & Sons

Rt. 4 Bay City, Mich.

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